2020 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 2021

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PURPOSE

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

INTRODUCTION

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

HYDROGEOLOGIC CONCEPTUAL MODEL

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

Geologic Units

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

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

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

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

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

Hydrogeologic Setting

An unconfined aquifer exists below the Facility with the water table present within the mine overburden stockpile near the contact of the mine overburden stockpile unit with the native soil unit, except on the western edge of the permitted landfill boundary near MW-7 where the water table is within the tailings. Groundwater flow is generally to the east and southeast towards a ditch (Welcome Creek) located 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 May 6th (MW-08 and MW-09), May 29th (MW-07 and MW-10), and October 5, 2020 (All locations) for CCR Appendix III parameters (Table 2A). MW-10 was also sampled for Appendix IV parameters (Table 2B) on May 29th to serve as a baseline dataset. 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).

Based on evaluation of the groundwater data, the general direction of groundwater flow is east-southeast (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 2020 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 2020 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 cannot be completed. The statistical analyses completed for the April and October events are presented in Appendix B.

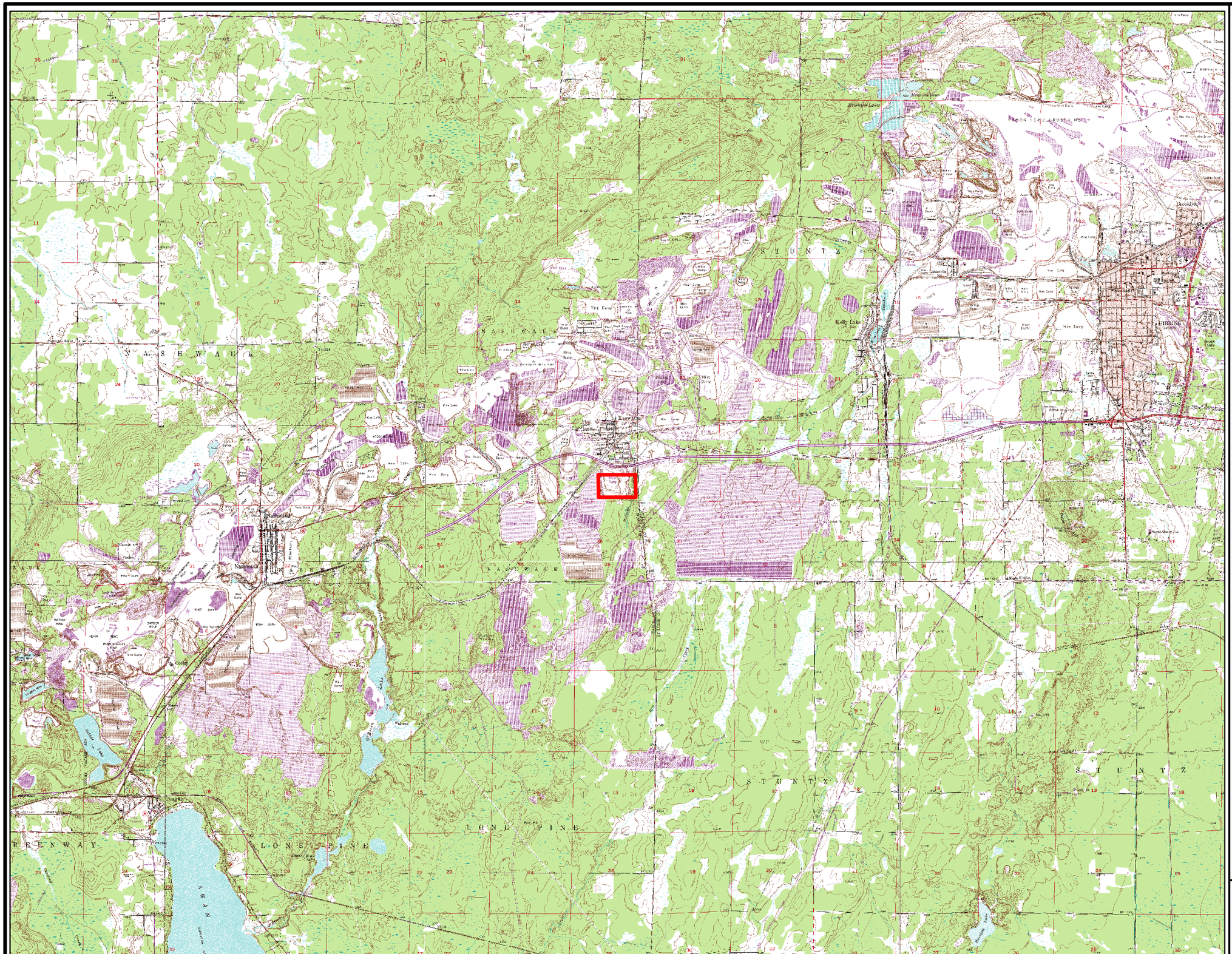
Following the SAP, the detection monitoring data collected in 2018 and 2019 was assessed and incorporated into the background dataset. After assessing the detection monitoring data, it was determined that intrawell assessment for MW-8 and MW-9 is more appropriate and will provide a higher statistical 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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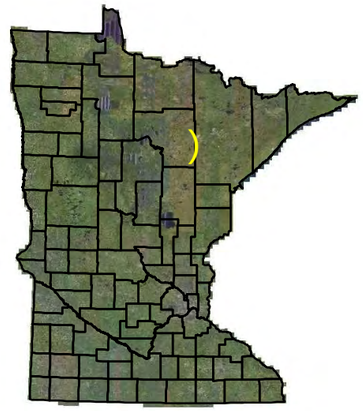
Feet

1 Inch = 6,000 Feet

Legend

Project Location



Notes:
Background imagery provded by MnGeo WMS.

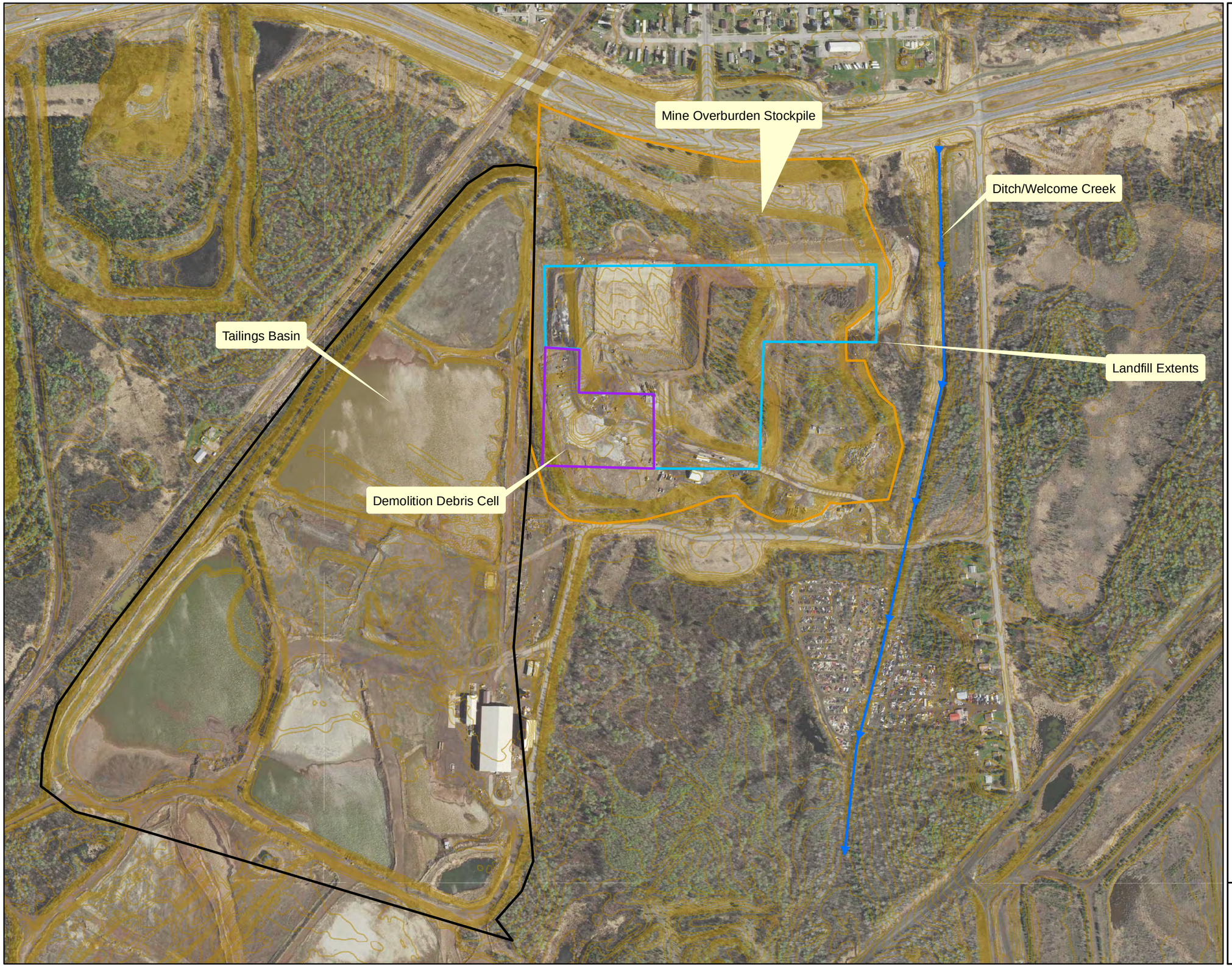
Figure 1
Site Vicinity Map

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

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.

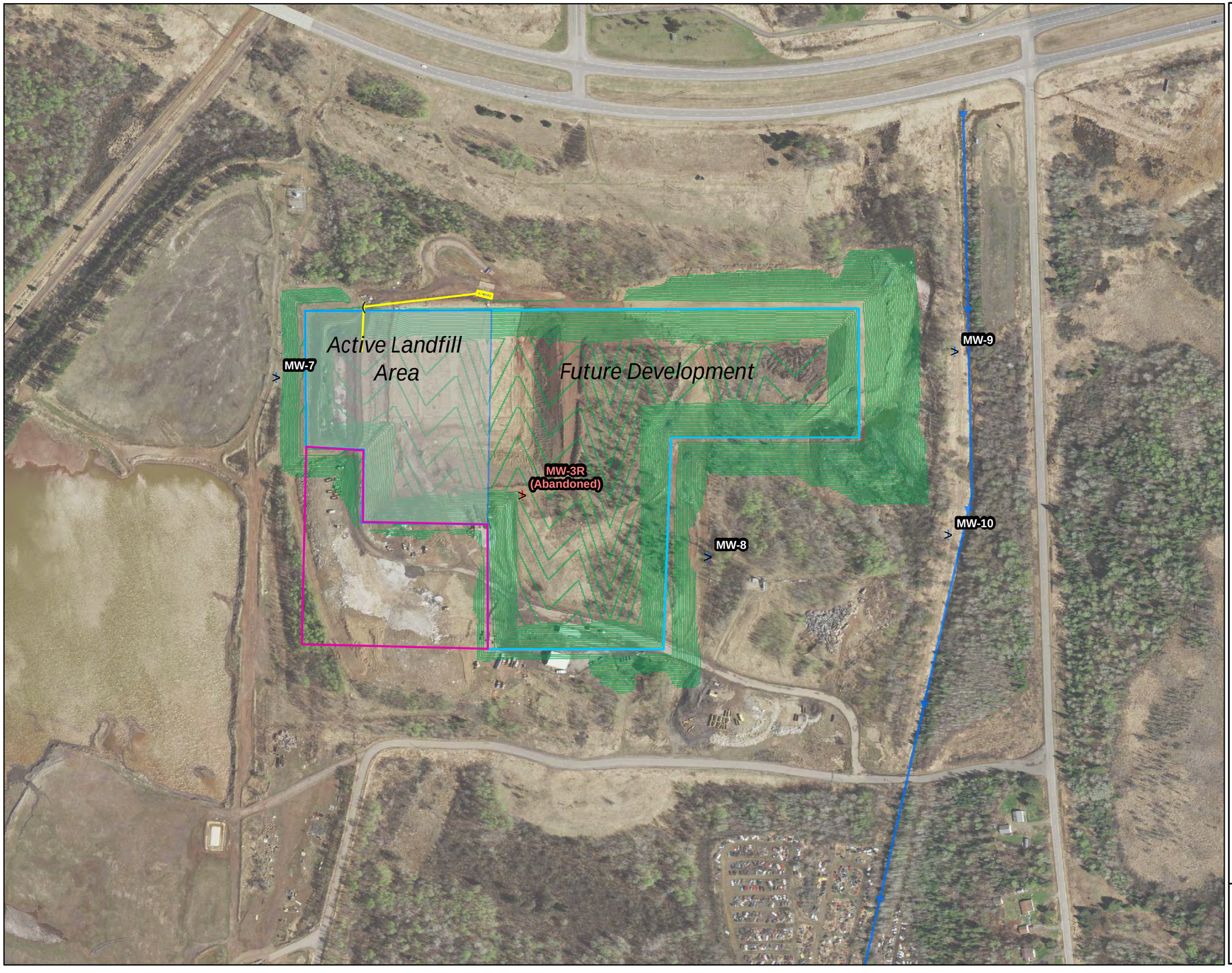
Figure 2
Site Location Map

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

NTS Environmental Science & Engineering
www.netechnical.com

Date Drawn :	27 January 2021
Drawn By :	CRH
NTS Project #:	6385CC

2



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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 3
Site Detail Map

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

NTS Environmental Science & Engineering
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NTS Project #:	6385CC

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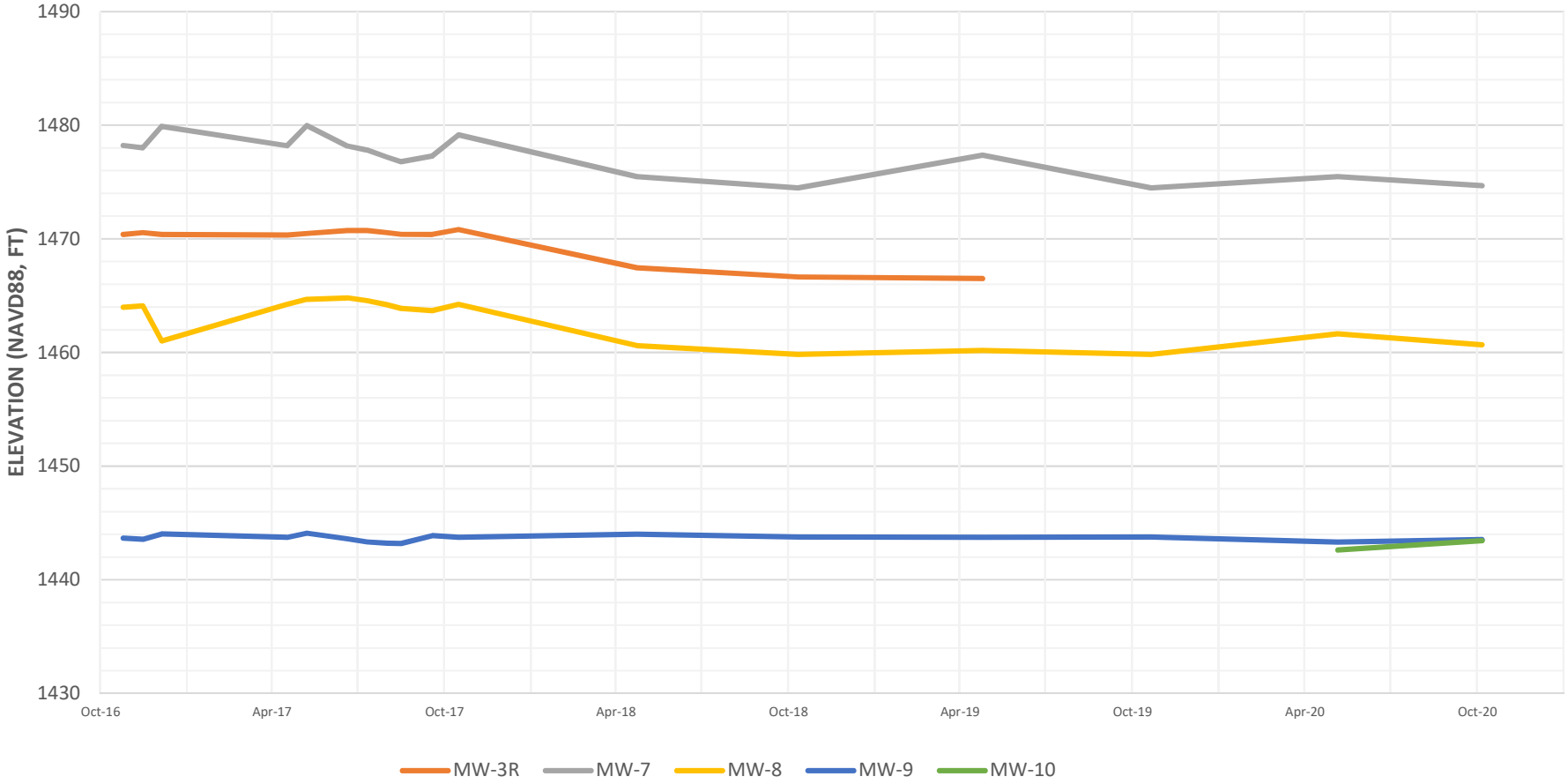
FIGURE 4
HYDROGRAPH



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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 2021.

Figure 5
Groundwater Contour Map
May, 2020

General Waste Industrial Landfill
CCR Groundwater Monitoring System
2020 Annual Monitoring Report
Keewatin, Minnesota (Itasca County)

Environmental Science & Engineering
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Date Drawn :	17 January 2021
Drawn By :	C. Hafdahl
NTS Project #:	6385CC

5

0 100 200 400

Feet

1 Inch = 200 Feet

Legend

- Landfill Footprint
- Demolition Debris Cell
- October 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 2021.

Figure 6
Groundwater Contour Map
October, 2020

General Waste Industrial Landfill
CCR Groundwater Monitoring System
2020 Annual Monitoring Report
Keewatin, Minnesota (Itasca County)

NTS Environmental Science & Engineering
www.netechnical.com

Date Drawn :	17 January 2021
Drawn By :	C. Hafdahl
NTS Project #:	6385CC

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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

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			
		29-May-20		15.8			1.4		
		5-Oct-20		19.4	<1.0	1.5	1.6		
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			
		29-May-20		<0.1			0.14		
		5-Oct-20			<0.1	<0.1	0.14		
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
		8-May-17	1760	712	731	438		433	<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**	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			
		29-May-20		1420			360		
		5-Oct-20		1140	594	467	180		
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		
pH, Lab	**mg/L**	25-Oct-16	7.3	7.4	7.4	7.4		7.3	6.3
		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

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**	1-Aug-17	7.1	7.1	7.2	7.2		7.2	6.0
		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		
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			

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**	4/23/2018	3131	2008	1894	1562			
		10/11/2018	3128	1428	1793	1526			
		4/25/2019	2983	2501	1821	1522			
		10/21/2019		2634	1917	1531			
		6-May-20			1821	1486			
		5-Oct-20		2565	1869	1575	818		

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		
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

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		
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

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	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

TABLE 4
UPDATED UPLs BASED ON UNIFIED GUIDANCE TABLE 19
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	MW-7	MW-3R	MW-8	MW-9
Boron (ug/L)	110.01	n/a	119.29	50
Calcium (mg/L)	579.98	n/a	438.4	233.23
Chloride (mg/L)	132.82	n/a	1.52	22.65
Fluoride (mg/L)	0.11	n/a	0.1	0.1
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	1243.1

APPENDICES

APPENDIX A

ANALYTICAL LABORATORY REPORTS & FIELD REPORTS

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

Field Report Cover Sheet

Event Key: 6385CC_2020 May(1 of 1)

Field Date: 5/6/2020

Report Created: 5/7/2020 4:59:13 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2020

NTS Project Manager:
Dennis Schubbe

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Prepped and departed for General Waste to conduct Spring CCR well monitoring event. Sampled wells MW-8 and MW-9 via the low flow stabilization method. No unusual observations were noted during sampling. FB and DUP were obtained at MW-9. Samples 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.

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):
16:11	6.36	0.00	1821	20.6	357	12.30

32.76	Static Water Level in Water by Field Measurement, ft
1461.65	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature:	51°F to 60°F	**Time:**	14:50
Wind Speed:	10-20 mph	**MDH#:**	817978
Wind Direction:	N-NW	**Well Depth (ft):**	41.22
Precipitation:	None	**SWL (ft):**	32.76
Cloud Cover:	Clear	**Pump Rate (gpm):**	0.20
Airborne Particulate:	None	**Interval (min):**	6.90
Color, Purge:	Orange	**Well Casing Diameter(in):**	2
Appearance, Purge:	Turbid	**Pump Start (HH:MM):**	15:08
Odor, Purge:	None	**Pump Stop (HH:MM):**	16:21
Color, Sample:	Colorless	**Purge Volume (gal):**	14.60
Appearance, Sample:	Clear	**Purging Strategy:**	Low-Flow Stabilization
Odor, Sample:	None	**Well Plug Present:**	☑
		Well Locked:	☑

GW CALCULATIONS:
Total Water Depth 41.22ft - Static Water Level 32.76ft = Water Column 8.46ft
Water Column 8.46ft x *Conversion Factor 0.163gal/ft = Well Volume 1.381gal
Well Volume 1.381gal ÷ Pump Rate 0.20gpm = Well Volume Interval 6.903min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 15:08 - Pump End Time 16:21 = Pump Duration 73min
Pump Duration 73min x Pump Rate 0.20gpm = Volume Purged 14.6gal
Top of Casing Elevation 1494.41 - Static Water Level 32.76 = 1461.65ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 6.90 **Pump Rate (gpm):** 0.20

MW8 (Cont'd)

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):**
15:15	6.29	0.00	1855	247.9	481	11.71	35.93
15:22	6.30	0.00	1862	163.4	457	11.81	35.90
15:29	6.33	0.00	1856	72.7	437	11.90	35.70
15:36	6.35	0.00	1845	48.6	417	12.03	35.18
15:43	6.37	0.00	1846	41.2	398	12.12	34.98
15:50	6.37	0.00	1837	30.0	380	12.33	34.94
15:57	6.37	0.00	1831	19.6	369	12.44	35.01
16:04	6.36	0.00	1834	21.4	361	12.38	34.99
16:11	6.36	0.00	1821	20.6	357	12.30	34.94

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):
11:24	6.53	0.00	1486	1.4	179	7.91

11.39 Static Water Level in Water by Field Measurement, ft

1443.33 Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°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: 10:45
MDH#: 817980
Well Depth (ft): 18.90
SWL (ft): 11.39
Pump Rate (gpm): 0.33
Interval (min): 3.71
Well Casing Diameter(in): 2
Pump Start (HH:MM): 11:00
Pump Stop (HH:MM): 11:39
Purge Volume (gal): 12.87
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.90ft - Static Water Level 11.39ft = Water Column 7.51ft
Water Column 7.51ft x *Conversion Factor 0.163gal/ft = Well Volume 1.226gal
Well Volume 1.226gal ÷ Pump Rate 0.33gpm = Well Volume Interval 3.714min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 11:00 - Pump End Time 11:39 = Pump Duration 39min
Pump Duration 39min x Pump Rate 0.33gpm = Volume Purged 12.87gal
Top of Casing Elevation 1454.72 - Static Water Level 11.39 = 1443.33ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 3.71 **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):**
11:04	6.46	0.00	1585	17.0	320	7.90	11.92
11:08	6.48	0.00	1550	6.7	250	7.88	11.92
11:12	6.50	0.00	1530	3.5	211	7.90	11.92
11:16	6.51	0.00	1523	2.6	196	7.89	11.92
11:20	6.52	0.00	1502	1.7	187	7.91	11.92
11:24	6.53	0.00	1486	1.4	179	7.91	11.92

Stabilization Passes NTS Criteria: ☑

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

Calibration Report

Event Key: 6385CC_2020 May(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 5/6/2020 **Post Cal Check:** ☑

Comments:

Sonde: R04-B	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 12/26/2019				
Temp Specification: +/-0.1 ˚C	7:30	7:30	18:35	**Specifications:**
pH:	3.95	4.0	4.0	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	20.8	20.8	20.7	
pH:	7.02	7.02	7.04	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	20.7	20.7	20.7	
pH:	9.96	10.06	9.96	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	20.9	20.9	20.8	
Conductance, Specific:	0.0	0.0	0.0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	20.9	20.9	19.7	
Conductance, Specific:	1008	1000	1002	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	20.23	20.23	20.84	
Turbidity:	0.4	0.0	0.0	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	0	0	0	
Temperature (°C):	19.9	19.9	20.7	
Turbidity:	103.1	102	104.1	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	102	102	102	
Temperature (°C):	20.4	20.4	20.1	

Calibration Report (cont'd)

Sonde:	R04-B	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	12/26/2019				
Temp Specification:	+/-0.1 ˚C	7:30	7:30	18:35	Specifications:
Oxygen, Dissolved:		8.73	8.58	8.56	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:		8.62	8.62	8.59	
Temperature (°C):		20.4	20.4	20.6	
Bar.Pressure (mmHg):		727	727	727	
ORP:		430	456	442	+/-20 mV
Standard (mV):		455.5	455.5	448.2	
Temperature (°C):		15.0	15.0	17.9	

6385CC Gen Waste CCR Monitoring 5/6/2020

Corey Andrews

High 58°F / Sunny / winds NW 10-20

0715 Prep / Cal / Load.

0815 Depart NTS.

1045 MW-9 Well locked, plugged, in good condition.

SWL	TWD	WC	Vol	Pump Rate
18.39	18.90	7.51	1.2 gal	0.33 GPM

1100 Begin pumping well. 1125 sample obtained.

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1104	6.46	0.00	1585	17.0	320	7.90	11.92
1108	6.48	0.00	1550	6.7	250	7.88	11.92
1112	6.50	0.00	1530	3.5	211	7.90	11.92
1116	6.51	0.00	1523	2.6	196	7.89	11.92
1120	6.52	0.00	1502	1.7	187	7.91	11.92
1124	6.53	0.00	1486	1.4	179	7.91	11.92

1450 MW-8 Well locked, plugged, in good condition.

SWL	TWD	WC	Vol	Pump Rate
32.76	41.22	8.46	1.4	0.20

1508 Begin pumping well. 1612 sample obtained.

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1515	6.29	0.00	1855	247.9	481	11.71	35.93
1522	6.30	0.00	1862	163.4	457	11.81	35.90
1529	6.33	0.00	1856	72.7	437	11.90	35.70
1536	6.35	6.00	1845	48.6	417	12.03	35.18
1543	6.36	0.00	1846	41.2	398	12.12	34.98
1550	6.37	0.00	1837	30.0	380	12.33	34.94

Rite in the Rain

102 6385 CC Gen Waste CCR Monitoring 5/6/2020

Corey Andrews

High 58°F / Sunny / winds 10-20 NW

MW-8 cont....

Time	pH	LDO	Sp. C	Turb	ORP	Temp	SWL
1557	6.37	0.00	1831	19.6	369	12.44	35.01
1604	6.36	0.00	1834	21.4	361	12.38	34.99
1611	6.36	0.00	1821	20.6	357	12.30	34.94

1740 Depart Gen Waste

1825 Arrive back at NTS. Unload/Kept.

Corey Andrews

5/6/2020

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

Vehicle Inspection Report

Event Key: 6385CC_2020 May(1 of 1)

Driver: Corey Andrews **Date:** 5/6/2020 **Time:** 07:40

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: 63850 ECC **Date:** 5/6/2020

Work Site Hazard Assessment Worksheet

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

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

Hazards Identified/Safety Items Discussed:

Slips, Trips, & Falls
Ticks

Corrective Actions Taken:

walk cautiously
check for ticks post field event.

Participants in Safety Discussion:

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

Signature of Site Supervisor/Examiner: Corey Andrews Date: 5/6/2020

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

WO#: 12143663

12143663

NTS

526 CHESTNUT STREET

VIRGINIA, MN 55792

(218) 741-4290 Fax: (218) 741-4291

Environmental Science & Engineering

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	DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY
SAMPLER: Corey Andrews	PERMIT REQ.: SW-620-002
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.	May-20
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:
	MW8	GW WELL	05/06/2020	1612	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	05/06/2020	1125	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	05/06/2020	1126	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	5/6/2020	1105	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:

SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews	DATE: 5/7/2020 TIME: 0816	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: 1.7 C	
DATE: 5/7/20	TIME: 0814		

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#: 12143663**

PM: NMJ **Due Date: 05/21/20**

CLIENT: NTS-Dennis

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: 1.4 Cooler Temp Corrected °C: 1.7 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 5/21/20

				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.
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?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
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: Date:

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

Field Report Peer Review Report

Event Key: 6385CC_2020 May(1 of 1)
Report Date: 5/6/2020
Lab WO#: 12143663

Reviewer #1:	Date:	Reviewer #2:	Date:
Karissa Vosen	5/8/2020	Jonathan Novak	5/7/2020

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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

May 19, 2020

Dennis Schubbe
Northeast Technical Services
526 Chestnut Street
Virginia, MN 55792

RE: Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Dear Dennis Schubbe:

Enclosed are the analytical results for sample(s) received by the laboratory on May 07, 2020. 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
- Pace Analytical Services - Virginia

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

Sincerely,

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 735-6712
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Scott Seeley, NTS
Karissa Vosen, NTS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

CERTIFICATIONS

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Pace Analytical Services Virginia Minnesota
315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Montana Certificate #CERT0103
Minnesota Dept of Health Certification #: 027-137-445
North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007

Pace Analytical Services Duluth Minnesota
4730 Oneota St., Duluth, MN 55807
Montana DHHS Certification #: CERT0102
Minnesota Dept of Ag Certification #: Via MN Dept of Health 027-137-152
Minnesota Dept of Health Certification #: 1733125
Wisconsin Dept of Agriculture Certification #: 480341
Wisconsin DNR Certification # : 999446800
North Dakota Certification #: R-105
Nevada DCNR Certification #: MN000372019-1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

SAMPLE SUMMARY

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12143663001	**MW8**	Water	05/06/20 16:12	05/07/20 08:16
12143663002	**MW9**	Water	05/06/20 11:25	05/07/20 08:16
12143663003	**Field Duplicate**	Water	05/06/20 11:26	05/07/20 08:16
12143663004	**Field Blank**	Water	05/06/20 11:05	05/07/20 08:16

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

SAMPLE ANALYTE COUNT

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12143663001	**MW8**	SM 2540 C-2011	EH1	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V
		EPA 300.0	CSD	3	PASI-V
12143663002	**MW9**	SM 2540 C-2011	EH1	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V
		EPA 300.0	CSD	3	PASI-V
12143663003	**Field Duplicate**	SM 2540 C-2011	EH1	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V
		EPA 300.0	CSD	3	PASI-V
12143663004	**Field Blank**	SM 2540 C-2011	EH1	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V
		EPA 300.0	CSD	3	PASI-V

PASI-DUL = Pace Analytical Services - Duluth
PASI-V = Pace Analytical Services - Virginia

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Sample: MW8 **Lab ID: 12143663001** Collected: 05/06/20 16:12 Received: 05/07/20 08:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Duluth							
Total Dissolved Solids	**1460**	mg/L	40.0	1		05/08/20 17:05		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**342**	mg/L	0.50	1	05/11/20 09:42	05/12/20 12:07	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**71.9**	ug/L	40.0	1	05/11/20 09:42	05/12/20 14:56	7440-42-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/08/20 14:59		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**1.6**	mg/L	1.0	1		05/12/20 16:30	16887-00-6	
Fluoride	ND	mg/L	0.10	1		05/12/20 16:30	16984-48-8	
Sulfate	**547**	mg/L	12.0	6		05/13/20 08:16	14808-79-8	

Sample: MW9 **Lab ID: 12143663002** Collected: 05/06/20 11:25 Received: 05/07/20 08:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Duluth							
Total Dissolved Solids	**1100**	mg/L	40.0	1		05/08/20 17:05		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**206**	mg/L	0.50	1	05/11/20 09:42	05/12/20 12:13	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	05/11/20 09:42	05/12/20 15:07	7440-42-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/08/20 14:51		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**2.1**	mg/L	1.0	1		05/12/20 17:12	16887-00-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Sample: MW9 **Lab ID: 12143663002** Collected: 05/06/20 11:25 Received: 05/07/20 08:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Fluoride	ND	mg/L	0.10	1		05/12/20 17:12	16984-48-8	
Sulfate	**425**	mg/L	8.0	4		05/13/20 08:58	14808-79-8	

Sample: Field Duplicate **Lab ID: 12143663003** Collected: 05/06/20 11:26 Received: 05/07/20 08:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Duluth							
Total Dissolved Solids	**1090**	mg/L	40.0	1		05/08/20 17:05		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**203**	mg/L	0.50	1	05/11/20 09:42	05/12/20 12:11	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	05/11/20 09:42	05/12/20 15:03	7440-42-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		05/08/20 18:04		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**2.1**	mg/L	1.0	1		05/12/20 16:51	16887-00-6	
Fluoride	ND	mg/L	0.10	1		05/12/20 16:51	16984-48-8	
Sulfate	**346**	mg/L	8.0	4		05/13/20 08:37	14808-79-8	

Sample: Field Blank **Lab ID: 12143663004** Collected: 05/06/20 11:05 Received: 05/07/20 08:16 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Duluth							
Total Dissolved Solids	ND	mg/L	10.0	1		05/08/20 17:05		
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	ND	mg/L	0.50	1	05/11/20 09:42	05/12/20 12:09	7440-70-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Sample: Field Blank **Lab ID: 12143663004** Collected: 05/06/20 11:05 Received: 05/07/20 08:16 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 - Virginia							
Boron	ND	ug/L	40.0	1	05/11/20 09:42	05/12/20 14:59	7440-42-8	
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**5.9**	Std. Units	0.10	1		05/08/20 09:49		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	ND	mg/L	1.0	1		05/12/20 14:45	16887-00-6	
Fluoride	ND	mg/L	0.10	1		05/12/20 14:45	16984-48-8	
Sulfate	ND	mg/L	2.0	1		05/12/20 14:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188702 | Analysis Method: SM 2540 C-2011
QC Batch Method: SM 2540 C-2011 | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Duluth
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

METHOD BLANK: 742711 Matrix: Water
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/08/20 17:05	

LABORATORY CONTROL SAMPLE: 742712

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	252	101	80-120	

SAMPLE DUPLICATE: 742713

Parameter	Units	12143617002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1950	1960	1	5	

SAMPLE DUPLICATE: 742714

Parameter	Units	12143663003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1090	1120	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
315 Chestnut Street
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QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188758 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

METHOD BLANK: 742836 Matrix: Water
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	05/12/20 12:03	

LABORATORY CONTROL SAMPLE: 742837

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	25.2	25.3	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 742838 742839

Parameter	Units	12143686003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	58.5	25.2	25.2	84.0	82.5	101	95	70-130	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 742840 742841

Parameter	Units	12143644002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	13.2	25.2	25.2	37.9	37.9	98	98	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
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QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188757 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

METHOD BLANK: 742832 Matrix: Water
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	40.0	05/12/20 14:48	

LABORATORY CONTROL SAMPLE: 742833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	50	48.2	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 742834 742835

Parameter	Units	12143629002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	<5.5	50	50	54.2	53.0	98	96	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
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(218) 735-6700

QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188669
QC Batch Method: SM 4500-H+ B-2011
Analysis Method: SM 4500-H+ B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12143663004

LABORATORY CONTROL SAMPLE: 742567

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	99	98-102	H6

SAMPLE DUPLICATE: 742568

Parameter	Units	12143604001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.8	6.8	0	10	H6

SAMPLE DUPLICATE: 742569

Parameter	Units	12143582008 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.8	1	10	H6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188670
QC Batch Method: SM 4500-H+ B-2011
Analysis Method: SM 4500-H+ B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12143663001, 12143663002, 12143663003

LABORATORY CONTROL SAMPLE: 742570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	99	98-102	H6

SAMPLE DUPLICATE: 742571

Parameter	Units	12143583005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.4	8.5	0	10	H6

SAMPLE DUPLICATE: 742572

Parameter	Units	12143663003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.4	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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

QC Batch: 188847
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

METHOD BLANK: 743183 Matrix: Water
Associated Lab Samples: 12143663001, 12143663002, 12143663003, 12143663004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	05/12/20 09:30	
Fluoride	mg/L	ND	0.10	05/12/20 09:30	
Sulfate	mg/L	ND	2.0	05/12/20 09:30	

LABORATORY CONTROL SAMPLE: 743184

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.3	103	90-110	
Fluoride	mg/L	5	5.4	109	90-110	
Sulfate	mg/L	50	51.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 743185 743186

Parameter	Units	12143677001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.6	50	50	55.7	56.7	102	104	90-110	2	20	
Fluoride	mg/L	ND	5	5	4.9	5.0	97	99	90-110	2	20	
Sulfate	mg/L	16.8	50	50	68.5	69.5	103	105	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 743187 743188

Parameter	Units	12143654001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	107	100	100	207	208	100	101	90-110	0	20	
Fluoride	mg/L	ND	10	10	9.8	9.9	97	98	90-110	1	20	
Sulfate	mg/L	73.4	100	100	176	177	103	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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALIFIERS

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

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.

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste Disposal
Pace Project No.: 12143663

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12143663001	**MW8**	SM 2540 C-2011	188702		
12143663002	**MW9**	SM 2540 C-2011	188702		
12143663003	**Field Duplicate**	SM 2540 C-2011	188702		
12143663004	**Field Blank**	SM 2540 C-2011	188702		
12143663001	**MW8**	EPA 200.7	188758	EPA 200.7	188840
12143663002	**MW9**	EPA 200.7	188758	EPA 200.7	188840
12143663003	**Field Duplicate**	EPA 200.7	188758	EPA 200.7	188840
12143663004	**Field Blank**	EPA 200.7	188758	EPA 200.7	188840
12143663001	**MW8**	EPA 200.8	188757	EPA 200.8	188841
12143663002	**MW9**	EPA 200.8	188757	EPA 200.8	188841
12143663003	**Field Duplicate**	EPA 200.8	188757	EPA 200.8	188841
12143663004	**Field Blank**	EPA 200.8	188757	EPA 200.8	188841
12143663001	**MW8**	SM 4500-H+ B-2011	188670		
12143663002	**MW9**	SM 4500-H+ B-2011	188670		
12143663003	**Field Duplicate**	SM 4500-H+ B-2011	188670		
12143663004	**Field Blank**	SM 4500-H+ B-2011	188669		
12143663001	**MW8**	EPA 300.0	188847		
12143663002	**MW9**	EPA 300.0	188847		
12143663003	**Field Duplicate**	EPA 300.0	188847		
12143663004	**Field Blank**	EPA 300.0	188847		

WO# : 12143663

12143663

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

Environmental Science & Engineering

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	DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY
SAMPLER: Corey Andrews	PERMIT REQ.: SW-620-002
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.	May-20
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:
	MW8	GW WELL	05/06/2020	1612	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	05/06/2020	1125	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	05/06/2020	1126	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	5/6/2020	1105	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews	DATE: 5/7/2020 TIME: 0816	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: 1.7 C	
DATE: 5/7/20	TIME: 0814		

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#: 12143663**

PM: NMJ **Due Date: 05/21/20**

CLIENT: NTS-Dennis

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: 1.4 Cooler Temp Corrected °C: 1.7 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 5/7/20

				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.
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:** 5/7/20

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

Field Report Cover Sheet

Event Key: 6385CC_2020 May(1 of 1)

Field Date: 5/29/2020

Report Created: 6/4/2020 5:12:59 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2020

NTS Project Manager:
Dennis Schubbe

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Conducted Spring 2020 CCR Groundwater Monitoring at wells MW-07 and MW-10. Sampled wells via low flow stabilization method. Top of well casing elevation shot in at MW-10 along with surface elevation. Static water levels obtained at MW-08 and MW-09. Samples 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):
10:25	6.91	0.00	1065	9.1	279	4.39

10.01	Static Water Level in Water by Field Measurement, ft
1442.606	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature:	51°F to 60°F	**Time:**	10:55
Wind Speed:	10-20 mph	**MDH#:**	847087
Wind Direction:	N-NW	**Well Depth (ft):**	18.20
Precipitation:	None	**SWL (ft):**	10.01
Cloud Cover:	Overcast	**Pump Rate (gpm):**	0.50
Airborne Particulate:	None	**Interval (min):**	2.67
Color, Purge:	Lt. Gray	**Well Casing Diameter(in):**	2
Appearance, Purge:	Turbid	**Pump Start (HH:MM):**	11:04
Odor, Purge:	None	**Pump Stop (HH:MM):**	11:32
Color, Sample:	Colorless	**Purge Volume (gal):**	14.00
Appearance, Sample:	Clear	**Purging Strategy:**	Low-Flow Stabilization
Odor, Sample:	None	**Well Plug Present:**	☑
		Well Locked:	☑

GW CALCULATIONS:
Total Water Depth 18.20ft - Static Water Level 10.01ft = Water Column 8.19ft
Water Column 8.19ft x *Conversion Factor 0.163gal/ft = Well Volume 1.337gal
Well Volume 1.337gal ÷ Pump Rate 0.50gpm = Well Volume Interval 2.673min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 11:04 - Pump End Time 11:32 = Pump Duration 28min
Pump Duration 28min x Pump Rate 0.50gpm = Volume Purged 14gal
Top of Casing Elevation 1452.616 - Static Water Level 10.01 = 1442.606ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 2.67 **Pump Rate (gpm):** 0.50

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):**
10:07	7.12	0.00	1053	28.6	321	4.41	10.75
10:10	7.01	0.00	1056	23.9	315	4.43	10.80
10:13	6.96	0.00	1065	14.9	306	4.39	10.79
10:16	6.91	0.00	1067	10.8	298	4.42	10.77
10:19	6.92	0.00	1067	9.8	289	4.46	10.77
10:22	6.93	0.00	1062	9.5	284	4.42	10.78
10:25	6.91	0.00	1065	9.1	279	4.39	10.77

MW10 (Cont'd)

Stabilization Passes NTS Criteria: ☑

MW7

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):
10:25	6.27	0.00	2958	23.4	280	10.60

20.65 Static Water Level in Water by Field Measurement, ft

1475.48 Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS **Time:** 09:43

Turbidity slightly out of stabilization specifications. Was bouncing up and down with last 3 well volumes.

Air Temperature: 51°F to 60°F
Wind Speed: 10-20 mph
Wind Direction: N-NW
Precipitation: None
Cloud Cover: Mostly Cloudy
Airborne Particulate: None
Color, Purge: Orange
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Turbid
Odor, Sample: None

MDH#: 817979
Well Depth (ft): 26.63
SWL (ft): 20.65
Pump Rate (gpm): 0.125
Interval (min): 7.81
Well Casing Diameter(in): 2
Pump Start (HH:MM): 9:37
Pump Stop (HH:MM): 10:35
Purge Volume (gal): 7.25
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 26.63ft - Static Water Level 20.65ft = Water Column 5.98ft
Water Column 5.98ft x *Conversion Factor 0.163gal/ft = Well Volume 0.976gal
Well Volume 0.976gal ÷ Pump Rate 0.125gpm = Well Volume Interval 7.807min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 09:37 - Pump End Time 10:35 = Pump Duration 58min
Pump Duration 58min x Pump Rate 0.125gpm = Volume Purged 7.25gal
Top of Casing Elevation 1496.13 - Static Water Level 20.65 = 1475.48ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 7.81 **Pump Rate (gpm):** 0.125

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):
9:45	6.36	0.09	2858	144.5	387	10.58	21.60
9:53	6.24	0.00	2896	49.2	350	10.48	21.61
10:01	6.25	0.00	2913	22.7	313	10.61	21.65
10:09	6.20	0.00	2931	17.5	293	10.70	21.67
10:17	6.27	0.00	2948	18.1	288	10.58	21.68
10:25	6.27	0.00	2958	23.4	280	10.60	21.68

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):

33.14 Static Water Level in Water by Field Measurement, ft

1461.27 Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Time: 10:43

Air Temperature: 51°F to 60°F

MDH#: 817978

Wind Speed: 5-10 mph

Well Depth (ft):

Wind Direction: N-NW

SWL (ft): 33.14

Precipitation: None

Pump Rate (gpm):

Cloud Cover: Mostly Cloudy

Interval (min):

Airborne Particulate: None

Well Casing Diameter(in): 2

Color, Purge:

Pump Start (HH:MM):

Appearance, Purge:

Pump Stop (HH:MM):

Odor, Purge:

Purge Volume (gal):

Color, Sample:

Purging Strategy:

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 1494.41 - Static Water Level 33.14 = 1461.27ft

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

Stabilization Passes NTS Criteria: ☐

MW9

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):

11.56	Static Water Level in Water by Field Measurement, ft
1443.16	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature:	51°F to 60°F	**Time:**	12:10
Wind Speed:	10-20 mph	**MDH#:**	817980
Wind Direction:	N-NW	**Well Depth (ft):**	
Precipitation:	None	**SWL (ft):**	11.56
Cloud Cover:	Mostly Cloudy	**Pump Rate (gpm):**	
Airborne Particulate:	None	**Interval (min):**	
Color, Purge:		**Well Casing Diameter(in):**	2
Appearance, Purge:		**Pump Start (HH:MM):**	
Odor, Purge:		**Pump Stop (HH:MM):**	
Color, Sample:		**Purge Volume (gal):**	
Appearance, Sample:		**Purging Strategy:**	
Odor, Sample:		**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 1454.72 - Static Water Level 11.56 = 1443.16ft

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

Stabilization Passes NTS Criteria: ☐

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

Calibration Report

Event Key: 6385CC_2020 May(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 5/29/2020 **Post Cal Check:** ☑

Comments:

Sonde: R04-A	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 12/26/2019				
Temp Specification: +/-0.1 ˚C	7:45	7:45	13:45	**Specifications:**
pH:	4.25	4.00	4.00	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	23.00	23.00	23.8	
pH:	7.19	7.01	6.96	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	22.6	22.6	23.0	
pH:	10.22	10.02	9.89	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	22.8	22.8	22.9	
Conductance, Specific:	0.0	0.0	0.0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	22.7	22.7	28.4	
Conductance, Specific:	993.3	1000	1006	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	23.02	23.02	23.0	
Turbidity:	2.1	0.0	0.4	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	0	0	0	
Temperature (°C):	22.9	22.9	22.9	
Turbidity:	108.2	102.0	103.3	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	102	102	102	
Temperature (°C):	23.1	23.1	22.9	

Calibration Report (cont'd)

Sonde:	R04-A	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	12/26/2019				
Temp Specification:	+/-0.1 ˚C	7:45	7:45	13:45	Specifications:
Oxygen, Dissolved:		8.17	8.17	8.28	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:		8.19	8.19	8.22	
Temperature (°C):		22.9	22.9	22.7	
Bar.Pressure (mmHg):		725	725	725	
ORP:		430	436	437	+/-20 mV
Standard (mV):		435.5	435.5	438.5	
Temperature (°C):		23.0	23.0	21.8	

6385CC Ben Wast Spring CCR Well Monitoring 5/29/2020

Corey Andrews

High 64°F / Mostly Cloudy / Winds NNW 15 mph

0730 Prep / Cal / Load.

0833 Depart NTS office.

0920 [MW7] Well locked, plugged & in good condition. Key #2106

SWL	TWD	WC	Vol	Pump Rate
20.66'	26.63'	5.98'	0.97	0.125 GPM

0937 Begin pumping. 1026 Sample obtained. 1027 Dup. 1005 F.B.

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
0945	6.36	0.09	2858	144.5	387	10.58	21.60'
0953	6.24	0.00	2896	49.2	350	10.48	21.61'
1001	6.25	0.00	2913	22.7	313	10.61	21.65'
1009	6.20	0.00	2931	17.5	293	10.70	21.67'
1017	6.27	0.00	2948	18.1	288	10.58	21.68'
1025	6.27	0.00	2958	23.4	280	10.60	21.68'

*Turbidity slightly out of stabilization specifications. Was beginning to bounce up and down with the last 3 well volumes.

1043 [MW8] SWL: 33.14'

1052 [MW10] Well locked, plugged & in good condition. Key #2121

SWL	TWD	WC	Vol	Pump Rate
10.01'	18.20'	8.19	1.3	0.50 GPM

1104 Begin pumping. 1126 Sample obtained.

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1107	7.12	0.00	1053	28.6	321	4.41	10.75
1110	7.01	0.00	1056	23.9	315	4.43	10.80
1113	6.96	0.00	1065	14.9	306	4.39	10.79
1116	6.91	0.00	1067	10.8	298	4.42	10.77
1119	6.92	0.00	1067	9.8	289	4.46	10.77
1122	6.93	0.00	1062	9.5	284	4.42	10.78
1125	6.91	0.00	1065	9.1	279	4.39	10.77

*Interior well casing elevation: 1452.616' H: 0.024' V: 0.042'

*Northing: 150980.648' Easting: 346318.105'

*Ground Elevation: 1449.801' H: 0.033' V: 0.051'

Unique well #847087

2102 [MW9] SWL: 11.56'

2133 Bench mark check @ station 3116 BC: 1494.120' ✓ actual: 1494.121'

3222 Code samples to PACE.

3226 Arrive back at NTS office. Unload / Post check / Report.

Corey Andrews

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

Vehicle Inspection Report

Event Key: 6385CC_2020 May(1 of 1)

Driver: Corey Andrews **Date:** 5/29/2020 **Time:** 07:43

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: 6385CC **Date:** 5/29/2020

Work Site Hazard Assessment Worksheet

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

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

Hazards Identified/Safety Items Discussed:

Slips, Trips & Falls
Ticks

Corrective Actions Taken:

watch footing
check for ticks post field event.

Participants in Safety Discussion:

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

Signature of Site Supervisor/Examiner: Corey Andrews Date: 5/29/2020

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

WO# : 12144685

12144685

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

Environmental Science & Engineering

CHAIN O

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:
DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY

SAMPLER: Corey Andrews

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

PROJECT NUMBER: 6385CC CCR Monitoirng

PERMIT REQ.: SW-620-002
May-20

LOG-IN #	SAMPLE #	DESCRIPTION:	COLLECTION: DATE:	TIME:	MATRIX LIQ.	SOL.	filtered	VOC M. 8260 (HCL)	GENERAL CHEMISTRY (NO PRES)	GENERAL CHEMISTRY (H2SO4)	TOTAL METALS (HN03)	DISSOLVED METALS (HN03)		REQUIRED ANALYSIS:
	MW7	GW WELL	5/29/20	1026	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	5/29/20	1126	X		N		2		2			Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Flouride, Chloride, Sulfate, TDS, pH, Radium 226 & 228 combined
	Field Duplicate	GW WELL	5/29/20	1027	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	5/29/20	1005	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

TYPE & # CONTAINERS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews DATE: 5/29/20 TIME: 1522

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: 2.7 C

DATE: 5/29/20 TIME: 1322

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

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
Antimony	Sb	200.8
Arsenic	As	200.8
Barium	Ba	200.7
Berylium	Be	200.8
Cadmium	Cd	200.8
Chromium	Cr	200.8
Cobalt	Co	200.8
Lead	Pb	200.8
Lithium	Li	200.8
Mercury	Hg	245.1
Molybdenum	Mo	200.8
Selenium	Se	200.8
Thallium	Ti	200.8
Radium 226	Ra	7500-Ra B
Radium 228	Ra	7500-Ra D

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

Field Report Peer Review Report

Event Key: 6385CC_2020 May(1 of 1)
Report Date: 5/29/2020
Lab WO#: 12144685

Reviewer #1:	Date:	Reviewer #2:	Date:
Jonathan Novak	6/5/2020	Terri Sabetti	6/3/2020

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:

MW7 turbidity qualified for not passing stabilization criteria.
Updated MW10 top of casing elevation.

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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

June 23, 2020

Dennis Schubbe
Northeast Technical Services
526 Chestnut Street
Virginia, MN 55792

RE: Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Dear Dennis Schubbe:

Enclosed are the analytical results for sample(s) received by the laboratory on May 29, 2020. 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 - Greensburg
- Pace Analytical Services - Virginia

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

Sincerely,

Carrie Jensen
carrie.jensen@pacelabs.com
(218)742-1042
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Scott Seeley, NTS
Karissa Vosen, NTS

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CERTIFICATIONS

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Pace Analytical Services Virginia Minnesota
315 Chestnut Street, Virginia, MN 55792
Montana Certificate #CERT0103
Alaska Certification UST-107
Minnesota Dept of Health Certification #: 027-137-445
North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12144685001	**MW7**	Water	05/29/20 10:26	05/29/20 13:22
12144685002	**MW10**	Water	05/29/20 11:26	05/29/20 13:22
12144685003	**Field Duplicate**	Water	05/29/20 10:27	05/29/20 13:22
12144685004	**Field Blank**	Water	05/29/20 10:05	05/29/20 13:22

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SAMPLE ANALYTE COUNT

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12144685001	**MW7**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	AP	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	DMB	3	PASI-V
12144685002	**MW10**	EPA 200.7	AK1	2	PASI-V
		EPA 200.8	DES	12	PASI-V
		EPA 245.1	AK1	1	PASI-V
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		SM 2540 C-2011	AP	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	DMB	3	PASI-V
12144685003	**Field Duplicate**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	AP	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	DMB	3	PASI-V
12144685004	**Field Blank**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	AP	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	DMB	3	PASI-V

PASI-PA = Pace Analytical Services - Greensburg
PASI-V = Pace Analytical Services - Virginia

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ANALYTICAL RESULTS

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Sample: MW7 **Lab ID: 12144685001** Collected: 05/29/20 10:26 Received: 05/29/20 13:22 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**583**	mg/L	0.50	1	06/09/20 09:50	06/10/20 13:07	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**64.7**	ug/L	40.0	1	06/09/20 09:50	06/11/20 12:09	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**2590**	mg/L	20.0	1		05/29/20 17:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.5**	Std. Units	0.10	1		06/02/20 20:57		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**15.8**	mg/L	1.0	1		06/02/20 22:15	16887-00-6	
Fluoride	ND	mg/L	0.10	1		06/02/20 22:15	16984-48-8	
Sulfate	**1420**	mg/L	20.0	10		06/02/20 22:36	14808-79-8	

Sample: MW10 **Lab ID: 12144685002** Collected: 05/29/20 11:26 Received: 05/29/20 13:22 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Barium	**50.7**	ug/L	10.0	1	06/09/20 09:50	06/10/20 13:09	7440-39-3	
Calcium	**168**	mg/L	0.50	1	06/09/20 09:50	06/10/20 13:09	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Antimony	ND	ug/L	1.0	1	06/09/20 09:50	06/11/20 12:12	7440-36-0	
Arsenic	ND	ug/L	1.0	1	06/09/20 09:50	06/11/20 12:12	7440-38-2	
Beryllium	ND	ug/L	0.30	1	06/09/20 09:50	06/11/20 12:12	7440-41-7	
Boron	ND	ug/L	40.0	1	06/09/20 09:50	06/11/20 12:12	7440-42-8	
Cadmium	ND	ug/L	0.20	1	06/09/20 09:50	06/11/20 12:12	7440-43-9	
Chromium	ND	ug/L	1.5	1	06/09/20 09:50	06/11/20 12:12	7440-47-3	
Cobalt	**0.80**	ug/L	0.20	1	06/09/20 09:50	06/11/20 12:12	7440-48-4	
Lead	ND	ug/L	0.50	1	06/09/20 09:50	06/11/20 12:12	7439-92-1	
Lithium	ND	ug/L	10.0	1	06/09/20 09:50	06/11/20 12:12	7439-93-2	
Molybdenum	**0.98**	ug/L	0.30	1	06/09/20 09:50	06/11/20 12:12	7439-98-7	
Selenium	ND	ug/L	1.0	1	06/09/20 09:50	06/11/20 12:12	7782-49-2	
Thallium	ND	ug/L	0.020	1	06/09/20 09:50	06/11/20 12:12	7440-28-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Sample: MW10 **Lab ID: 12144685002** Collected: 05/29/20 11:26 Received: 05/29/20 13:22 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1 Pace Analytical Services - Virginia							
Mercury	ND	ug/L	0.10	1	06/10/20 10:45	06/11/20 11:37	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**806**	mg/L	20.0	1		05/29/20 17:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.7**	Std. Units	0.10	1		06/02/20 20:41		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**1.4**	mg/L	1.0	1		06/03/20 05:24	16887-00-6	
Fluoride	**0.14**	mg/L	0.10	1		06/03/20 05:24	16984-48-8	
Sulfate	**360**	mg/L	20.0	10		06/03/20 06:28	14808-79-8	

Sample: Field Duplicate **Lab ID: 12144685003** Collected: 05/29/20 10:27 Received: 05/29/20 13:22 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**616**	mg/L	0.50	1	06/09/20 09:50	06/10/20 13:11	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**64.6**	ug/L	40.0	1	06/09/20 09:50	06/11/20 12:16	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**2670**	mg/L	20.0	1		05/29/20 17:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		06/02/20 20:47		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**15.8**	mg/L	1.0	1		06/03/20 07:32	16887-00-6	
Fluoride	ND	mg/L	0.10	1		06/03/20 07:32	16984-48-8	
Sulfate	**1420**	mg/L	20.0	10		06/03/20 08:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Sample: Field Blank **Lab ID: 12144685004** Collected: 05/29/20 10:05 Received: 05/29/20 13:22 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	ND	mg/L	0.50	1	06/09/20 09:50	06/10/20 13:13	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	06/09/20 09:50	06/11/20 12:20	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	ND	mg/L	10.0	1		05/29/20 17:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**5.5**	Std. Units	0.10	1		06/02/20 20:44		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	ND	mg/L	1.0	1		06/03/20 08:58	16887-00-6	
Fluoride	ND	mg/L	0.10	1		06/03/20 08:58	16984-48-8	
Sulfate	ND	mg/L	2.0	1		06/03/20 08:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190904
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685002

METHOD BLANK: 751305 Matrix: Water
Associated Lab Samples: 12144685002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.10	06/11/20 11:32	

LABORATORY CONTROL SAMPLE: 751306

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2	1.8	88	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 751307 751308

Parameter	Units	12144685002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	2	2	1.9	1.9	96	95	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190782 | Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 | Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

METHOD BLANK: 750706 Matrix: Water
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	ND	10.0	06/10/20 13:03	
Calcium	mg/L	ND	0.50	06/10/20 13:03	

LABORATORY CONTROL SAMPLE: 750707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	250	260	104	85-115	
Calcium	mg/L	25.2	26.1	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 750708 750709

Parameter	Units	12145158001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	ug/L	<10.0	250	250	266	264	105	104	70-130	1	20	
Calcium	mg/L	59.8	25.2	25.2	88.1	87.0	112	107	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190783 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

METHOD BLANK: 750710 Matrix: Water
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	1.0	06/11/20 12:01	
Arsenic	ug/L	ND	1.0	06/11/20 12:01	
Beryllium	ug/L	ND	0.30	06/11/20 12:01	
Boron	ug/L	ND	40.0	06/11/20 12:01	
Cadmium	ug/L	ND	0.20	06/11/20 12:01	
Chromium	ug/L	ND	1.5	06/11/20 12:01	
Cobalt	ug/L	ND	0.20	06/11/20 12:01	
Lead	ug/L	ND	0.50	06/11/20 12:01	
Lithium	ug/L	ND	10.0	06/11/20 12:01	
Molybdenum	ug/L	ND	0.30	06/11/20 12:01	
Selenium	ug/L	ND	1.0	06/11/20 12:01	
Thallium	ug/L	ND	0.020	06/11/20 12:01	

LABORATORY CONTROL SAMPLE: 750711

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	10	10.5	105	85-115	
Arsenic	ug/L	50	52.1	104	85-115	
Beryllium	ug/L	10	11.4	114	85-115	
Boron	ug/L	50	52.7	105	85-115	
Cadmium	ug/L	25	26.6	106	85-115	
Chromium	ug/L	50	52.4	105	85-115	
Cobalt	ug/L	25	26.5	106	85-115	
Lead	ug/L	50	53.9	108	85-115	
Lithium	ug/L	50	55.0	110	85-115	
Molybdenum	ug/L	10	10.3	103	85-115	
Selenium	ug/L	50	53.1	106	85-115	
Thallium	ug/L	1	1.1	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 750712 750713

Parameter	Units	12144914003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	10	10	10.9	11.0	108	108	70-130	1	20	
Arsenic	ug/L	1.4	50	50	54.4	53.7	106	105	70-130	1	20	
Beryllium	ug/L	ND	10	10	11.1	11.0	111	110	70-130	1	20	
Boron	ug/L	102	50	50	154	156	104	107	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 750712 750713

Parameter	Units	12144914003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	25	25	26.4	25.8	106	103	70-130	2	20	
Chromium	ug/L	ND	50	50	51.9	51.2	103	102	70-130	1	20	
Cobalt	ug/L	0.23	25	25	27.1	26.8	107	106	70-130	1	20	
Lead	ug/L	ND	50	50	54.0	53.8	108	107	70-130	0	20	
Lithium	ug/L	ND	50	50	61.7	61.9	108	108	70-130	0	20	
Molybdenum	ug/L	1.0	10	10	11.9	11.9	109	109	70-130	1	20	
Selenium	ug/L	ND	50	50	54.8	53.9	109	107	70-130	2	20	
Thallium	ug/L	ND	1	1	1.1	1.1	109	110	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190179 | Analysis Method: SM 2540 C-2011
QC Batch Method: SM 2540 C-2011 | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

METHOD BLANK: 748187 Matrix: Water
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/29/20 17:38	

METHOD BLANK: 748191 Matrix: Water
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/29/20 17:38	

LABORATORY CONTROL SAMPLE: 748188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	248	99	80-120	

SAMPLE DUPLICATE: 748189

Parameter	Units	12144612001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1640	1650	1	5	

SAMPLE DUPLICATE: 748190

Parameter	Units	12144685001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2590	2570	1	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190325
QC Batch Method: SM 4500-H+ B-2011
Analysis Method: SM 4500-H+ B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685001, 12144685002, 12144685003, 12144685004

LABORATORY CONTROL SAMPLE: 748814

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: 748815

Parameter	Units	12144817001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.4	0	10	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190295
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685001

METHOD BLANK: 748634 Matrix: Water
Associated Lab Samples: 12144685001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	06/02/20 11:30	
Fluoride	mg/L	ND	0.10	06/02/20 11:30	
Sulfate	mg/L	ND	2.0	06/02/20 11:30	

LABORATORY CONTROL SAMPLE: 748635

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.9	102	90-110	
Fluoride	mg/L	5	5.3	106	90-110	
Sulfate	mg/L	50	50.7	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 748636 748637

Parameter	Units	12144637001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	147	50	50	196	196	96	97	90-110	0	20	
Fluoride	mg/L	0.28	5	5	5.3	5.4	101	102	90-110	0	20	
Sulfate	mg/L	4.0	50	50	54.5	54.8	101	102	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 748638 748639

Parameter	Units	12144750001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	50	50	50.7	51.6	101	103	90-110	2	20	
Fluoride	mg/L	ND	5	5	5.1	5.2	103	105	90-110	2	20	
Sulfate	mg/L	ND	50	50	50.9	51.9	102	104	90-110	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 190309
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12144685002, 12144685003, 12144685004

METHOD BLANK: 748715 Matrix: Water
Associated Lab Samples: 12144685002, 12144685003, 12144685004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	06/03/20 00:02	
Fluoride	mg/L	ND	0.10	06/03/20 00:02	
Sulfate	mg/L	ND	2.0	06/03/20 00:02	

LABORATORY CONTROL SAMPLE: 748716

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.4	101	90-110	
Fluoride	mg/L	5	5.1	102	90-110	
Sulfate	mg/L	50	50.6	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 748719 748720

Parameter	Units	12144685002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.4	50	50	51.5	52.1	100	101	90-110	1	20	
Fluoride	mg/L	0.14	5	5	5.3	5.3	102	104	90-110	1	20	
Sulfate	mg/L	360	500	500	869	878	102	104	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 748721 748722

Parameter	Units	12144800002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.8	50	50	55.4	57.6	97	102	90-110	4	20	
Fluoride	mg/L	0.15	5	5	5.1	5.3	99	103	90-110	4	20	
Sulfate	mg/L	8.9	50	50	58.1	60.5	98	103	90-110	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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Sample: MW10 **Lab ID: 12144685002** Collected: 05/29/20 11:26 Received: 05/29/20 13:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	**0.0728 ± 0.428 (0.874) C:NA T:94%**	pCi/L	06/19/20 16:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	**0.349 ± 0.421 (0.891) C:73% T:81%**	pCi/L	06/17/20 13:12	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL - RADIOCHEMISTRY

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 399221
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 12144685002

METHOD BLANK: 1933397 Matrix: Water
Associated Lab Samples: 12144685002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.387 ± 0.399 (0.828) C:73% T:83%	pCi/L	06/17/20 13:12	

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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL - RADIOCHEMISTRY

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

QC Batch: 399220
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 12144685002

METHOD BLANK: 1933396 Matrix: Water
Associated Lab Samples: 12144685002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.405 (0.786) C:NA T:83%	pCi/L	06/19/20 17:03	

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
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALIFIERS

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste May-20
Pace Project No.: 12144685

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12144685001	**MW7**	EPA 200.7	190782	EPA 200.7	190889
12144685002	**MW10**	EPA 200.7	190782	EPA 200.7	190889
12144685003	**Field Duplicate**	EPA 200.7	190782	EPA 200.7	190889
12144685004	**Field Blank**	EPA 200.7	190782	EPA 200.7	190889
12144685001	**MW7**	EPA 200.8	190783	EPA 200.8	190888
12144685002	**MW10**	EPA 200.8	190783	EPA 200.8	190888
12144685003	**Field Duplicate**	EPA 200.8	190783	EPA 200.8	190888
12144685004	**Field Blank**	EPA 200.8	190783	EPA 200.8	190888
12144685002	**MW10**	EPA 245.1	190904	EPA 245.1	191012
12144685002	**MW10**	EPA 903.1	399220		
12144685002	**MW10**	EPA 904.0	399221		
12144685001	**MW7**	SM 2540 C-2011	190179		
12144685002	**MW10**	SM 2540 C-2011	190179		
12144685003	**Field Duplicate**	SM 2540 C-2011	190179		
12144685004	**Field Blank**	SM 2540 C-2011	190179		
12144685001	**MW7**	SM 4500-H+ B-2011	190325		
12144685002	**MW10**	SM 4500-H+ B-2011	190325		
12144685003	**Field Duplicate**	SM 4500-H+ B-2011	190325		
12144685004	**Field Blank**	SM 4500-H+ B-2011	190325		
12144685001	**MW7**	EPA 300.0	190295		
12144685002	**MW10**	EPA 300.0	190309		
12144685003	**Field Duplicate**	EPA 300.0	190309		
12144685004	**Field Blank**	EPA 300.0	190309		

WO# : 12144685

12144685

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

Environmental Science & Engineering

CHAIN O

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	DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY
SAMPLER: Corey Andrews	PERMIT REQ.: SW-620-002
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.	May-20
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	5/29/20	1026	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	5/29/20	1126	X		N		2		2			Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Flouride, Chloride, Sulfate, TDS, pH, Radium 226 & 228 combined
	Field Duplicate	GW WELL	5/29/20	1027	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	5/29/20	1005	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews	DATE: 5/29/20 TIME: 1522	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: 2.7 C		
DATE: 5/29/20	TIME: 1322		

GENERAL WASTE CCR METHODS

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

GENERAL WASTE CCR METHODS - MW10

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
Antimony	Sb	200.8
Arsenic	As	200.8
Barium	Ba	200.7
Berylium	Be	200.8
Cadmium	Cd	200.8
Chromium	Cr	200.8
Cobalt	Co	200.8
Lead	Pb	200.8
Lithium	Li	200.8
Mercury	Hg	245.1
Molybdenum	Mo	200.8
Selenium	Se	200.8
Thallium	Ti	200.8
Radium 226	Ra	7500-Ra B
Radium 228	Ra	7500-Ra D

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#: 12144685**

PM: CLJ **Due Date: 06/12/20**

CLIENT: NTS-Dennis

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

Temp should be above freezing to 6 °C Correction Factor: 10.3 Date and Initials of Person Examining Contents: BM 5/29/20

				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: 5/30/20

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

Field Report Cover Sheet

Event Key: 6385CC_2020 Oct(1 of 1)

Field Date: 10/5/2020

Report Created: 10/6/2020 2:39:26 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2020

NTS Project Manager:
Dennis Schubbe

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Obtained samples at MW7, MW8, MW9, and MW10 at General Waste for the Fall CCR monitoring event. All wells were sampled via the low flow stabilization method. There were no deviations from SOP during sampling. Field Blank and Duplicate sample were obtained at MW10. 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 Blank

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

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
13:07	6.66	0.08	817.8	1.5	384	12.39

9.19 Static Water Level in Water by Field Measurement, ft

1443.426 Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 10-20 mph
Wind Direction: W-SW
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: 12:26
MDH#: 847087
Well Depth (ft): 18.20
SWL (ft): 9.19
Pump Rate (gpm): 0.33
Interval (min): 4.46
Well Casing Diameter(in): 2
Pump Start (HH:MM): 12:42
Pump Stop (HH:MM): 13:12
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 9.19ft = Water Column 9.01ft
Water Column 9.01ft x *Conversion Factor 0.163gal/ft = Well Volume 1.47gal
Well Volume 1.47gal ÷ Pump Rate 0.33gpm = Well Volume Interval 4.456min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 12:42 - Pump End Time 13:12 = Pump Duration 30min
Pump Duration 30min x Pump Rate 0.33gpm = Volume Purged 9.9gal
Top of Casing Elevation 1452.616 - Static Water Level 9.19 = 1443.426ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 4.46 **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):**
12:47	6.62	0.07	824.1	12.6	436	12.39	9.61
12:52	6.63	0.08	818.2	6.8	423	12.43	9.61
12:57	6.64	0.07	825.0	3.5	400	12.42	9.61
13:02	6.65	0.08	824.4	2.0	391	12.42	9.61
13:07	6.66	0.08	817.8	1.5	384	12.39	9.61

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):
9:46	6.21	0.18	2565	16.3	424	9.20

21.46	Static Water Level in Water by Field Measurement, ft
1474.67	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature:	41°F to 50°F	**Time:**	09:00
Wind Speed:	10-20 mph	**MDH#:**	817979
Wind Direction:	W-SW	**Well Depth (ft):**	26.63
Precipitation:	None	**SWL (ft):**	21.46
Cloud Cover:	Clear	**Pump Rate (gpm):**	0.15
Airborne Particulate:	None	**Interval (min):**	5.62
Color, Purge:	Orange	**Well Casing Diameter(in):**	2
Appearance, Purge:	Silty	**Pump Start (HH:MM):**	9:10
Odor, Purge:	None	**Pump Stop (HH:MM):**	9:50
Color, Sample:	Colorless	**Purge Volume (gal):**	6.00
Appearance, Sample:	Clear	**Purging Strategy:**	Low-Flow Stabilization
Odor, Sample:	None	**Well Plug Present:**	☑
		Well Locked:	☑

GW CALCULATIONS:
Total Water Depth 26.63ft - Static Water Level 21.46ft = Water Column 5.17ft
Water Column 5.17ft x *Conversion Factor 0.163gal/ft = Well Volume 0.844gal
Well Volume 0.844gal ÷ Pump Rate 0.15gpm = Well Volume Interval 5.625min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 09:10 - Pump End Time 09:50 = Pump Duration 40min
Pump Duration 40min x Pump Rate 0.15gpm = Volume Purged 6gal
Top of Casing Elevation 1496.13 - Static Water Level 21.46 = 1474.67ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.62 **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):**
9:16	6.13	0.27	2564	60.9	513	8.93	23.00
9:22	6.15	0.18	2578	21.0	495	9.02	23.00
9:28	6.17	0.17	2580	17.3	468	8.95	23.02
9:34	6.19	0.18	2578	18.0	440	9.03	23.00
9:40	6.21	0.19	2569	17.0	433	9.12	23.00
9:46	6.21	0.18	2565	16.3	424	9.20	23.00

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):
11:55	6.29	0.13	1869	21.2	297	9.80

33.72	Static Water Level in Water by Field Measurement, ft
1460.69	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Time: 10:40
Air Temperature: 41°F to 50°F
MDH#: 817978
Wind Speed: 10-20 mph
Well Depth (ft): 41.22
Wind Direction: W-SW
SWL (ft): 33.72
Precipitation: None
Pump Rate (gpm): 0.15
Cloud Cover: Clear
Interval (min): 8.16
Airborne Particulate: None
Well Casing Diameter(in): 2
Color, Purge: Orange
Pump Start (HH:MM): 10:35
Appearance, Purge: Silty
Pump Stop (HH:MM): 12:08
Odor, Purge: None
Purge Volume (gal): 13.95
Color, Sample: Colorless
Purging Strategy: Low-Flow Stabilization
Appearance, Sample: Clear
Well Plug Present: ☑
Odor, Sample: None
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 41.22ft - Static Water Level 33.72ft = Water Column 7.5ft
Water Column 7.5ft x *Conversion Factor 0.163gal/ft = Well Volume 1.224gal
Well Volume 1.224gal ÷ Pump Rate 0.15gpm = Well Volume Interval 8.159min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 10:35 - Pump End Time 12:08 = Pump Duration 93min
Pump Duration 93min x Pump Rate 0.15gpm = Volume Purged 13.95gal
Top of Casing Elevation 1494.41 - Static Water Level 33.72 = 1460.69ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 8.16 **Pump Rate (gpm):** 0.15

MW8 (Cont'd)

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):**
10:43	6.02	0.24	1865	540.0	424	9.06	36.20
10:51	6.21	0.20	1869	188.3	385	9.03	36.10
10:59	6.21	0.16	1868	122.2	363	9.08	36.06
11:07	6.26	0.16	1875	58.8	343	9.22	35.98
11:15	6.27	0.13	1872	48.8	329	9.50	35.81
11:23	6.29	0.13	1870	43.8	317	9.60	35.78
11:31	6.28	0.13	1878	34.4	308	9.66	35.75
11:39	6.29	0.12	1867	22.2	299	9.71	35.72
11:47	6.28	0.12	1865	20.9	302	9.77	35.72
11:55	6.29	0.13	1869	21.2	297	9.80	35.70

Stabilization Passes NTS Criteria: ☑

MW9

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):
14:04	6.50	0.07	1575	2.3	149	9.03

11.20	Static Water Level in Water by Field Measurement, ft
1443.52	Elevation, GW (MSL) in Water by Calculation, ft

SECTION #2: OBSERVATIONS

Air Temperature:	51°F to 60°F	**Time:**	13:26
Wind Speed:	10-20 mph	**MDH#:**	817980
Wind Direction:	W-SW	**Well Depth (ft):**	18.90
Precipitation:	None	**SWL (ft):**	11.20
Cloud Cover:	Clear	**Pump Rate (gpm):**	0.33
Airborne Particulate:	None	**Interval (min):**	3.81
Color, Purge:	Colorless	**Well Casing Diameter(in):**	2
Appearance, Purge:	Clear	**Pump Start (HH:MM):**	13:36
Odor, Purge:	None	**Pump Stop (HH:MM):**	14:15
Color, Sample:	Colorless	**Purge Volume (gal):**	12.87
Appearance, Sample:	Clear	**Purging Strategy:**	Low-Flow Stabilization
Odor, Sample:	None	**Well Plug Present:**	☑
		Well Locked:	☑

GW CALCULATIONS:
Total Water Depth 18.90ft - Static Water Level 11.20ft = Water Column 7.7ft
Water Column 7.7ft x *Conversion Factor 0.163gal/ft = Well Volume 1.257gal
Well Volume 1.257gal ÷ Pump Rate 0.33gpm = Well Volume Interval 3.808min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 13:36 - Pump End Time 14:15 = Pump Duration 39min
Pump Duration 39min x Pump Rate 0.33gpm = Volume Purged 12.87gal
Top of Casing Elevation 1454.72 - Static Water Level 11.20 = 1443.52ft

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):**
13:40	6.45	0.12	1644	55.0	217	8.97	11.56
13:44	6.59	0.09	1620	27.2	179	9.18	11.56
13:48	6.47	0.08	1601	16.7	167	8.91	11.56
13:52	6.48	0.07	1582	8.2	158	8.91	11.56
13:56	6.49	0.07	1576	5.4	154	8.88	11.56
14:00	6.49	0.07	1569	4.2	152	8.92	11.56
14:04	6.50	0.07	1575	2.3	149	9.03	11.56

MW9 (Cont'd)

Stabilization Passes NTS Criteria: ☑

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

Calibration Report

Event Key: 6385CC_2020 Oct(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 10/5/2020 **Post Cal Check:** ☑

Comments:

Sonde: R04-D	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 6/17/2020				
Temp Specification: +/-0.1 ˚C	7:15	7:15	16:00	**Specifications:**
pH:	3.81	4.0	3.82	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	17.72	17.72	18.19	
pH:	7.09	7.03	7.01	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	17.56	17.56	18.13	
pH:	9.97	10.07	10.03	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	17.54	17.54	18.44	
Conductance, Specific:	0	0	0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	17.47	17.47	18.13	
Conductance, Specific:	1001	1000	1004	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	17.83	17.83	18.22	
Turbidity:	2.0	0.0	0.0	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	0	0	0	
Temperature (°C):	17.47	17.47	18.27	
Turbidity:	99.3	100.0	103.2	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	100	100	100	
Temperature (°C):	17.47	17.47	18.78	

Calibration Report (cont'd)

Sonde:	R04-D	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	6/17/2020				
Temp Specification:	+/-0.1 ˚C	7:15	7:15	16:00	Specifications:
Oxygen, Dissolved:		8.08	9.09	8.95	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:		9.06	9.06	8.8	
Temperature (°C):		17.4	17.4	18.5	
Bar.Pressure (mmHg):		719	719	715	
ORP:		444	449	443	+/-20 mV
Standard (mV):		448.9	448.9	448	
Temperature (°C):		17.65	17.65	18.02	

03856C Gen Waste October CCR Monitoring 10/5/2020
Corey Andrews V#62
High 62°F / Sunny / winds WSW 10-20 mph
0715 Prep / Cal / Load
0805 Depart NTS office
0852 Arrive at Gen. Waste
0857 MW 7 0947 Sample obtained. Well locked & plugged. Key #2106

SWL	TWD	Vol(gal)	WC	SWL After
21.46	26.63	0.84	5.17'	22.90'

0910 Begin pumping well @ 0.15 GPM

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
0916	6.13	0.27	2564	60.9	513	8.93	23.00'
0922	6.15	0.18	2578	21.0	495	9.02	23.00'
0928	6.17	0.17	2580	17.3	468	8.95	23.02'
0934	6.19	0.18	2578	18.0	440	9.03	23.00
0940	6.21	0.19	2569	17.0	433	9.12	23.00
0946	6.21	0.18	2565	16.3	424	9.20	23.00

1004 MW 8 1156 Sample obtained. Well plugged & locked. Key #2106

SWL	TWD	WC	Vol(gal)	SWL After
33.72'	41.22'	7.5'	1.22	33.90'

1035 Begin pumping well @ 0.15 GPM

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1043	6.02	0.24	1865	540.0	424	9.06	36.20
1051	6.21	0.20	1869	188.3	385	9.03	36.10
1059	6.21	0.16	1868	122.2	363	9.08	36.06
1107	6.26	0.16	1875	58.8	343	9.22	35.98
1115	6.27	0.13	1872	48.8	329	9.50	35.81
1123	6.29	0.13	1870	43.8	317	9.60	35.78
1131	6.28	0.13	1878	34.4	308	9.66	35.75
1139	6.29	0.12	1867	22.2	299	9.71	35.72
1147	6.28	0.12	1865	20.9	302	9.77	35.75
1155	6.29	0.13	1869	21.2	297	9.80	35.70

1222 MW 10 1308 Sample obtained. FD 1309 FB 1315 Well plugged & locked. Key #2121

SWL	TWD	WC	Vol(gal)	SWL After
9.19	18.20	9.01	1.46	9.24'

1242 Begin pumping well @ 0.33 GPM

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1247	6.62	0.07	824.1	12.6	436	12.39	9.61
1252	6.63	0.08	818.2	6.8	423	12.43	9.61
1257	6.64	0.07	825.0	3.5	400	12.42	9.61
1302	6.65	0.08	824.4	2.0	391	12.42	9.61
1307	6.66	0.08	817.8	1.5	384	12.39	9.61

Scale: 1 square = _____

6385CC Gen Waste October CCR Monitoring 10/5/2020

Corey Andrews V#62

High 62°F / Sunny / winds WSW 10-20 mph

1324 MW9 1404 Sample obtained. well locked & plugged

SWL	TWD	WC	Vol(gal)	SWL After
11.20	18.90	7.7'	1.25	11.20

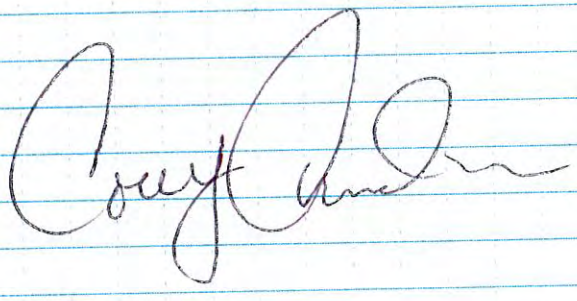
1336 Begin pumping well @0.336PM

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1340	6.45	0.12	1644	55.0	217	8.97	11.56
1344	6.59	0.09	1620	27.2	179	9.18	11.56
1348	6.47	0.08	1601	16.7	167	8.91	11.56
1352	6.48	0.07	1582	8.2	158	8.91	11.56
1356	6.49	0.07	1576	5.4	154	8.88	11.56
1400	6.49	0.07	1569	4.2	152	8.92	11.56
1404	6.50	0.07	1575	2.3	149	9.03	11.56

1435 ~~[illegible]~~

1515 Arrive back at NTS. Fill out COC's. Unload vehicles.

1544 Code samples to PACE



10/5/2020

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

Vehicle Inspection Report

Event Key: 6385CC_2020 Oct(1 of 1)

Driver: Corey Andrews **Date:** 10/5/2020 **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: 6385C **Date:** 10/5/2020

Work Site Hazard Assessment Worksheet

- ❒ PPE Required (List): High viz Level* D
- ❒ Weather Conditions (List): High 60°F, SSW - 10-20 mph, Partly Cloudy
- ❒ 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
Haz. Mat.

Corrective Actions Taken:

Drive defensively
Use proper PPE

Participants in Safety Discussion:

	Print Name	Signature
1.	Jon Strasburg	
2.	Greg Andrews	
3.		
4.		
5.		

Signature of Site Supervisor/Examiner: Date: 10/5/2020

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

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

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

REQUIRED TURN-AROUND TIME: 2 Weeks from submittal date

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

REPORT TO:
DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY

SAMPLER: Corey Andrews

PERMIT REQ.: SW-620-002

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

Oct-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)		SPECIAL INSTRUCTIONS: REQUIRED ANALYSIS:
	MW7	GW WELL	10/5/20	0947	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	10/5/20	1156	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	10/5/20	1409	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	10/5/20	1308	X		N		1		2			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	10/5/20	1309	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	10/5/20	1315	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

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

RELINQUISHED BY: Corey Andrews DATE: 10/5/20 TIME: 1544

RECEIVED BY: CAB 10-5-20 DATE: TIME:

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

RECEIVED FROM NTS SAMPLE LOCKUP BY: DATE: TIME:

RECEIVED FOR LAB BY: Christin Jarris 10-5-20 15:44

TEMP.AT ARRIVAL: 3.8 C

DATE: TIME:

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_2020 Oct(1 of 1)
Report Date: 10/5/2020
Lab WO#: 12151748

Reviewer #1:	Date:	Reviewer #2:	Date:
Catherine Hafdahl	10/6/2020	Terri Sabetti	10/5/2020

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:

Purging Strategy: Low Flow Stabilization utilized for all wells.

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

October 16, 2020

Dennis Schubbe
Northeast Technical Services
526 Chestnut Street
Virginia, MN 55792

RE: Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Dear Dennis Schubbe:

Enclosed are the analytical results for sample(s) received by the laboratory on October 05, 2020. 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 - Virginia

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

Sincerely,

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 735-6712
Project Manager

Enclosures

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

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

CERTIFICATIONS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Pace Analytical Services Virginia Minnesota
315 Chestnut Street, Virginia, MN 55792
Montana Certificate #CERT0103
Alaska Certification UST-107
Minnesota Dept of Health Certification #: 027-137-445
North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

SAMPLE SUMMARY

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12151748001	**MW7**	Water	10/05/20 09:47	10/05/20 15:44
12151748002	**MW8**	Water	10/05/20 11:56	10/05/20 15:44
12151748003	**MW9**	Water	10/05/20 14:09	10/05/20 15:44
12151748004	**MW10**	Water	10/05/20 13:08	10/05/20 15:44
12151748005	**Field Duplicate**	Water	10/05/20 13:09	10/05/20 15:44
12151748006	**Field Blank**	Water	10/05/20 13:15	10/05/20 15:44

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

SAMPLE ANALYTE COUNT

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12151748001	**MW7**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V
12151748002	**MW8**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V
12151748003	**MW9**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V
12151748004	**MW10**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V
12151748005	**Field Duplicate**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V
12151748006	**Field Blank**	EPA 200.7	AK1	1	PASI-V
		EPA 200.8	DES	1	PASI-V
		SM 2540 C-2011	RC	1	PASI-V
		SM 4500-H+ B-2011	RC	1	PASI-V
		EPA 300.0	KL2	3	PASI-V

PASI-V = Pace Analytical Services - Virginia

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Sample: MW7 **Lab ID: 12151748001** Collected: 10/05/20 09:47 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**521**	mg/L	0.50	1	10/07/20 14:45	10/12/20 17:03	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**71.7**	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:46	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**2370**	mg/L	20.0	1		10/07/20 14:13		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		10/05/20 22:54		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**19.4**	mg/L	1.0	1		10/13/20 08:33	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/13/20 08:33	16984-48-8	
Sulfate	**1140**	mg/L	22.0	11		10/13/20 17:21	14808-79-8	

Sample: MW8 **Lab ID: 12151748002** Collected: 10/05/20 11:56 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**360**	mg/L	0.50	1	10/07/20 14:45	10/12/20 16:59	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**70.3**	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:38	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**1500**	mg/L	20.0	1		10/06/20 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		10/05/20 22:49		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	ND	mg/L	1.0	1		10/13/20 07:09	16887-00-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Sample: MW8 **Lab ID: 12151748002** Collected: 10/05/20 11:56 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Fluoride	ND	mg/L	0.10	1		10/13/20 07:09	16984-48-8	
Sulfate	**594**	mg/L	12.0	6		10/13/20 15:58	14808-79-8	

Sample: MW9 **Lab ID: 12151748003** Collected: 10/05/20 14:09 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**225**	mg/L	0.50	1	10/07/20 14:45	10/12/20 17:01	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	**42.9**	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:42	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**1200**	mg/L	20.0	1		10/06/20 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		10/05/20 22:46		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**1.5**	mg/L	1.0	1		10/13/20 07:30	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/13/20 07:30	16984-48-8	
Sulfate	**471**	mg/L	10.0	5		10/13/20 17:00	14808-79-8	

Sample: MW10 **Lab ID: 12151748004** Collected: 10/05/20 13:08 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**124**	mg/L	0.50	1	10/07/20 14:45	10/12/20 16:51	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:23	7440-42-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
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(218) 735-6700

ANALYTICAL RESULTS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Sample: MW10 **Lab ID: 12151748004** Collected: 10/05/20 13:08 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**556**	mg/L	20.0	1		10/06/20 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		10/05/20 22:24		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**1.6**	mg/L	1.0	1		10/13/20 04:21	16887-00-6	
Fluoride	**0.14**	mg/L	0.10	1		10/13/20 04:21	16984-48-8	
Sulfate	**180**	mg/L	2.0	1		10/13/20 04:21	14808-79-8	

Sample: Field Duplicate **Lab ID: 12151748005** Collected: 10/05/20 13:09 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	**126**	mg/L	0.50	1	10/07/20 14:45	10/12/20 16:49	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:19	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	**568**	mg/L	20.0	1		10/06/20 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		10/05/20 22:21		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	**1.6**	mg/L	1.0	1		10/13/20 06:27	16887-00-6	
Fluoride	**0.14**	mg/L	0.10	1		10/13/20 06:27	16984-48-8	
Sulfate	**180**	mg/L	2.0	1		10/13/20 06:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Sample: Field Blank **Lab ID: 12151748006** Collected: 10/05/20 13:15 Received: 10/05/20 15:44 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia							
Calcium	ND	mg/L	0.50	1	10/07/20 14:45	10/12/20 16:53	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Virginia							
Boron	ND	ug/L	40.0	1	10/07/20 14:45	10/15/20 12:34	7440-42-8	
2540C Total Dissolved Solids	Analytical Method: SM 2540 C-2011 Pace Analytical Services - Virginia							
Total Dissolved Solids	ND	mg/L	10.0	1		10/06/20 16:17		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia							
pH at 25 Degrees C	**5.6**	Std. Units	0.10	1		10/05/20 22:42		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Virginia							
Chloride	ND	mg/L	1.0	1		10/13/20 06:48	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/13/20 06:48	16984-48-8	
Sulfate	ND	mg/L	2.0	1		10/13/20 06:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 200156 | Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 | Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

METHOD BLANK: 791436 Matrix: Water
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	10/12/20 16:35	

LABORATORY CONTROL SAMPLE: 791437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	25.2	25.2	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 791438 791439

Parameter	Units	12151824002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	50.9	25.2	25.2	75.1	76.1	96	100	70-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 200155 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

METHOD BLANK: 791432 Matrix: Water
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	40.0	10/15/20 11:49	

LABORATORY CONTROL SAMPLE: 791433

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	50	53.3	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 791434 791435

Parameter	Units	12151893003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	108	50	50	155	158	94	100	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 200051 — Analysis Method: SM 2540 C-2011
QC Batch Method: SM 2540 C-2011 — Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

METHOD BLANK: 790893 — Matrix: Water
Associated Lab Samples: 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/06/20 16:17	

METHOD BLANK: 790897 — Matrix: Water
Associated Lab Samples: 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/06/20 16:17	

LABORATORY CONTROL SAMPLE: 790894

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

SAMPLE DUPLICATE: 790895

Parameter	Units	12151705004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	140	120	15	5	D6

SAMPLE DUPLICATE: 790896

Parameter	Units	12151829004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1670	1650	1	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 200139
QC Batch Method: SM 2540 C-2011
Analysis Method: SM 2540 C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748001

METHOD BLANK: 791327 Matrix: Water
Associated Lab Samples: 12151748001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/07/20 14:13	

METHOD BLANK: 791331 Matrix: Water
Associated Lab Samples: 12151748001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/07/20 14:13	

LABORATORY CONTROL SAMPLE: 791328

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	254	102	80-120	

SAMPLE DUPLICATE: 791329

Parameter	Units	12151833002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1310	1300	1	5	

SAMPLE DUPLICATE: 791330

Parameter	Units	12151833009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	82.0	82.0	0	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 199979
QC Batch Method: SM 4500-H+ B-2011
Analysis Method: SM 4500-H+ B-2011
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

LABORATORY CONTROL SAMPLE: 790504

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.1	101	98-102	H6

SAMPLE DUPLICATE: 790505

Parameter	Units	12151705001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.7	6.7	0	10	H6

SAMPLE DUPLICATE: 790506

Parameter	Units	12151705003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	8.0	1	10	H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

QC Batch: 200561 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Virginia
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

METHOD BLANK: 792927 Matrix: Water
Associated Lab Samples: 12151748001, 12151748002, 12151748003, 12151748004, 12151748005, 12151748006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/13/20 02:57	
Fluoride	mg/L	ND	0.10	10/13/20 02:57	
Sulfate	mg/L	ND	2.0	10/13/20 02:57	

LABORATORY CONTROL SAMPLE: 792928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.3	101	90-110	
Fluoride	mg/L	5	5.0	100	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 792929 792930

Parameter	Units	12151748004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.6	50	50	52.0	53.6	101	104	90-110	3	20	
Fluoride	mg/L	0.14	5	5	5.2	5.4	101	105	90-110	3	20	
Sulfate	mg/L	180	250	250	432	424	101	98	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 792931 792932

Parameter	Units	12151992004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	64.8	50	50	113	115	96	101	90-110	2	20	
Fluoride	mg/L	3.9	5	5	8.7	8.9	95	100	90-110	3	20	
Sulfate	mg/L	71.3	50	50	119	122	96	101	90-110	2	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALIFIERS

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

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

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.

Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 735-6700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste Oct 20
Pace Project No.: 12151748

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12151748001	**MW7**	EPA 200.7	200156	EPA 200.7	200239
12151748002	**MW8**	EPA 200.7	200156	EPA 200.7	200239
12151748003	**MW9**	EPA 200.7	200156	EPA 200.7	200239
12151748004	**MW10**	EPA 200.7	200156	EPA 200.7	200239
12151748005	**Field Duplicate**	EPA 200.7	200156	EPA 200.7	200239
12151748006	**Field Blank**	EPA 200.7	200156	EPA 200.7	200239
12151748001	**MW7**	EPA 200.8	200155	EPA 200.8	200238
12151748002	**MW8**	EPA 200.8	200155	EPA 200.8	200238
12151748003	**MW9**	EPA 200.8	200155	EPA 200.8	200238
12151748004	**MW10**	EPA 200.8	200155	EPA 200.8	200238
12151748005	**Field Duplicate**	EPA 200.8	200155	EPA 200.8	200238
12151748006	**Field Blank**	EPA 200.8	200155	EPA 200.8	200238
12151748001	**MW7**	SM 2540 C-2011	200139		
12151748002	**MW8**	SM 2540 C-2011	200051		
12151748003	**MW9**	SM 2540 C-2011	200051		
12151748004	**MW10**	SM 2540 C-2011	200051		
12151748005	**Field Duplicate**	SM 2540 C-2011	200051		
12151748006	**Field Blank**	SM 2540 C-2011	200051		
12151748001	**MW7**	SM 4500-H+ B-2011	199979		
12151748002	**MW8**	SM 4500-H+ B-2011	199979		
12151748003	**MW9**	SM 4500-H+ B-2011	199979		
12151748004	**MW10**	SM 4500-H+ B-2011	199979		
12151748005	**Field Duplicate**	SM 4500-H+ B-2011	199979		
12151748006	**Field Blank**	SM 4500-H+ B-2011	199979		
12151748001	**MW7**	EPA 300.0	200561		
12151748002	**MW8**	EPA 300.0	200561		
12151748003	**MW9**	EPA 300.0	200561		
12151748004	**MW10**	EPA 300.0	200561		
12151748005	**Field Duplicate**	EPA 300.0	200561		
12151748006	**Field Blank**	EPA 300.0	200561		

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

REQUIRED TURN-AROUI

WO#: 12151748

PM: NMJ Due Date: 10/19/20
CLIENT: NTS-Dennis

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

REPORT TO:
DENNIS SCHUBBE, KARISSA VOSEN & SCOTT SEELEY

SAMPLER: Corey Andrews
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.
PROJECT NUMBER: 6385CC CCR Monitoirng
PERMIT REQ.: SW-620-002
Oct-20

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)		REQUIRED ANALYSIS:
	MW7	GW WELL	10/5/20	0947	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	10/5/20	1156	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	10/5/20	1409	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	10/5/20	1308	X		N		1		2			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	10/5/20	1309	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	10/5/20	1315	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews DATE: TIME:
RECEIVED BY: CAS 10-5-20 DATE: TIME:
RELINQUISHED TO NTS SAMPLE LOCK-UP BY: DATE: TIME:
RECEIVED FROM NTS SAMPLE LOCKUP BY: DATE: TIME:
RECEIVED FOR LAB BY: Christin Jarvis 10-5-20 15:44
TEMP.AT ARRIVAL: 3.8 C
DATE: TIME:

GENERAL WASTE CCR METHODS

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

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#: 12151748

PM: NMJ Due Date: 10/19/20

CLIENT: NTS-Dennis

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: 3.5 **Cooler Temp Corrected °C:** 3.8 **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:** CMJ 10-5-20

				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 NMJ 10/6/20	☐ No	☐ N/A	3. No relinquished date/time.
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?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
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:** 10/6/20

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)

APPENDIX B

May 2020 & October 2020 Statistical Evaluation Reports

July 8, 2020

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

Sent Via Email

RE: Statistical Analysis for May 2020 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 May, 2020 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 1 sample, upper prediction limits cannot be established for MW-10. MW-10 will continue to be monitored and statistics completed once a sufficient background dataset has been collected.

Since MW-3R, a compliance/downgradient well, was unable to be monitored during the May 2020 event, and since MW-10, the replacement of MW-3R, does not have a sufficient background dataset, a complete evaluation of a Statistically Significant Increase (SSI) as outlined by the site specific Statistical Analysis Plan (SAP) cannot be determined. Therefore, only MW-8 and MW-9 will be assessed for an SSI.

Review of the data shows that no monitoring trigger values were intersected during the May 2020 monitoring event at the compliance/downgradient wells MW-8 and MW-9.

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 May 6, 2020 at locations MW-8 and MW-9. Field parameters and laboratory samples were collected on May 29, 2020 at locations MW-7 and MW-10. Laboratory results were received

from PACE Analytical on May 19, 2020 and June 23, 2020. Lab analyses completed includes those found in the CCR guidance Appendix III table for locations MW-7, MW-8, and MW-9. Lab analyses for MW-10 included those parameters found in CCR guidance Appendix III and Appendix IV tables (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), MW-8 Chloride).

Table 1
2020 April Detection Monitoring Event Results

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	64.7	n/a	71.9	<40	<40
Calcium (mg/L)	583	n/a	342	206	168
Chloride (mg/L)	15.8	n/a	1.6	2.1	1.4
Fluoride (mg/L)	<0.10	n/a	<0.10	<0.10	0.14
pH (SU)	6.27	n/a	6.30	6.52	6.91
Sulfate (mg/L)	1420	n/a	547	425	360
Total Dissolved Solids (mg/L)	2590	n/a	1460	1020	806

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.

MW-8 indicated an exceedance of detection monitoring trigger value for Chloride. This is the first occurrence of elevated Chloride and therefore does not constitute an SSI.

The May 2020 monitoring data does not indicate that an SSI has occurred at the Keewatin facility. However, the analysis is incomplete since MW-3R is unable to be monitored and the replacement well 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 2020. It can be seen that Calcium, TDS, and Sulfate indicate increasing trends; Chloride and Boron 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 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: May 2020 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III & Appendix IV Parameters

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

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1.0 Purpose

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

2.0 Initial Background Monitoring

2.1 Background Monitoring Parameters

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

2.2 Background Data Analysis

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

2.3 Establishing Background Dataset

2.3.1 Summary Statistics and Distribution

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

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

2.3.2 Interwell and Intrawell Analysis

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

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

2.3.3 Upper Prediction Limit

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

$$UPL = x + ks$$

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

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

2.4 Analyzing for Trends

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

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

2.5 Non-Detect Data

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

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

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

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

2.6 Outliers

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

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

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

Where:

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

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

2.7 Duplicate Samples

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

3.0 Detection Monitoring

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

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

3.1 Stastically Significant Increase

3.1.1 Two Sample Test

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

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

3.1.2 Pracitical monitoring Practice

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

3.1.3 Responding to an SSI

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

4.0 Assessment Monitoring

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

4.1 Monitoring Parameters

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

4.2 Groundwater Protection Standard

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

4.3 Move to Corrective Action

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

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

4.4 Return to Detection Monitoring

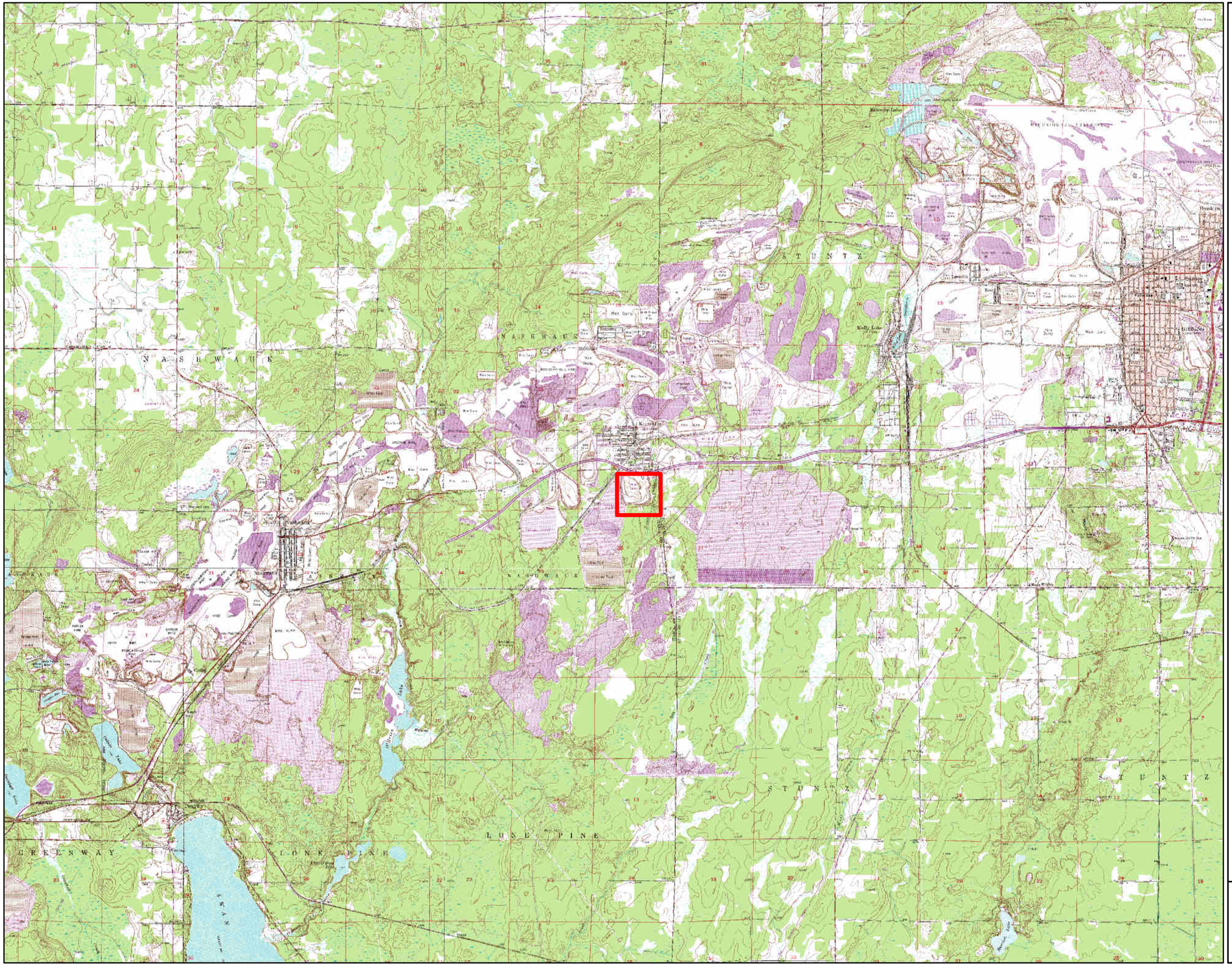
Assessment monitoring may cease and detection monitoring be re-initiated when all Appendix III and monitored Appendix IV parameters are below background (upgradient well) concentrations.

5.0 Updating Background Data

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

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

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



N

0 3,000 6,000 12,000

Feet

1 Inch = 6,000 Feet

Legend

Project Location

Notes:

-Background image has been provided by MNGEO Web Services

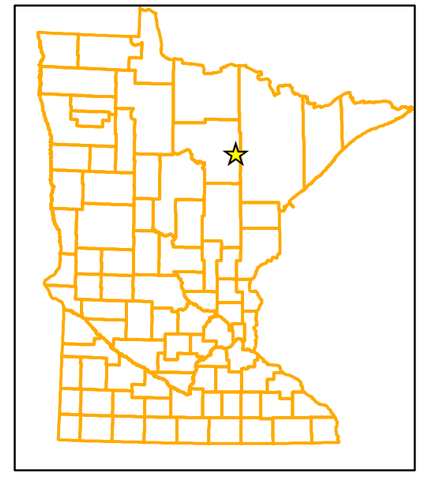


Figure 1
Site Location Map

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

Environmental Science & Engineering
www.netechnical.com

Date Drawn :
October 4, 2017

Drawn By :
Evan Johnson

NTS Project #:
6385CC

1

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	
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Arsenic	0.01 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Cadmium	0.10 mg/L
Chromium	0.10 mg/L
Cobalt	NA
Fluoride	4.0 mg/L
Lead	0.015 mg/L
Lithium	NA
Mercury	0.002 mg/L
Molybdenum	NA
Selenium	0.05 mg/L
Thallium	0.002 mg/L
Radium 226 and 228 combined	5 pCi/L

January 11, 2020

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

Sent Via Email

RE: Statistical Analysis for October 2020 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 October, 2020 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 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. MW-10 was monitored again in October, 2020, for CCR guidance Appendix III parameters. Currently, with 2 samples, upper prediction limits cannot be established for MW-10. MW-10 will continue to be monitored and statistics completed once a sufficient background dataset has been collected, which is anticipated to be 8 samples.

Since MW-3R, a compliance/downgradient well, was unable to be monitored during the October 2020 event, and since MW-10, the replacement of MW-3R, does not have a sufficient background dataset, a complete evaluation of a Statistically Significant Increase (SSI) as outlined by the site specific Statistical Analysis Plan (SAP) cannot be determined. Therefore, only MW-8 and MW-9 will be assessed for an SSI.

Review of the data shows that no monitoring trigger values were intersected during the October, 2020 monitoring event at the compliance/downgradient wells MW-8 and MW-9.

The upgradient well MW-7 has shown trending concentrations over the previous 3 years of monitoring. However, the October 2020 measurements indicated generally steady state conditions when compared to the April 2020 monitoring results.

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 was replaced by MW-10 in 2020. Field parameters and laboratory samples were collected on October 5, 2020. Laboratory results were received from PACE Analytical on October 16, 2020. 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. No results from the October 2020 event exceeded detection monitoring trigger values.

Table 1
2020 October Detection Monitoring Event Results

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	71.7	n/a	70.3	< 40.0 (Non-Detect)	<40.0
Calcium (mg/L)	521	n/a	360	217	124
Chloride (mg/L)	19.4	n/a	<1.0	6.0	1.6
Fluoride (mg/L)	<0.10 (Non-Detect)	n/a	<0.10 (Non-Detect)	<0.10 (Non-Detect)	0.14
pH (SU)	6.21	n/a	6.29	6.53	6.66
Sulfate (mg/L)	1140	n/a	594	467	180
Total Dissolved Solids (mg/L)	2370	n/a	1500	1100	556

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.

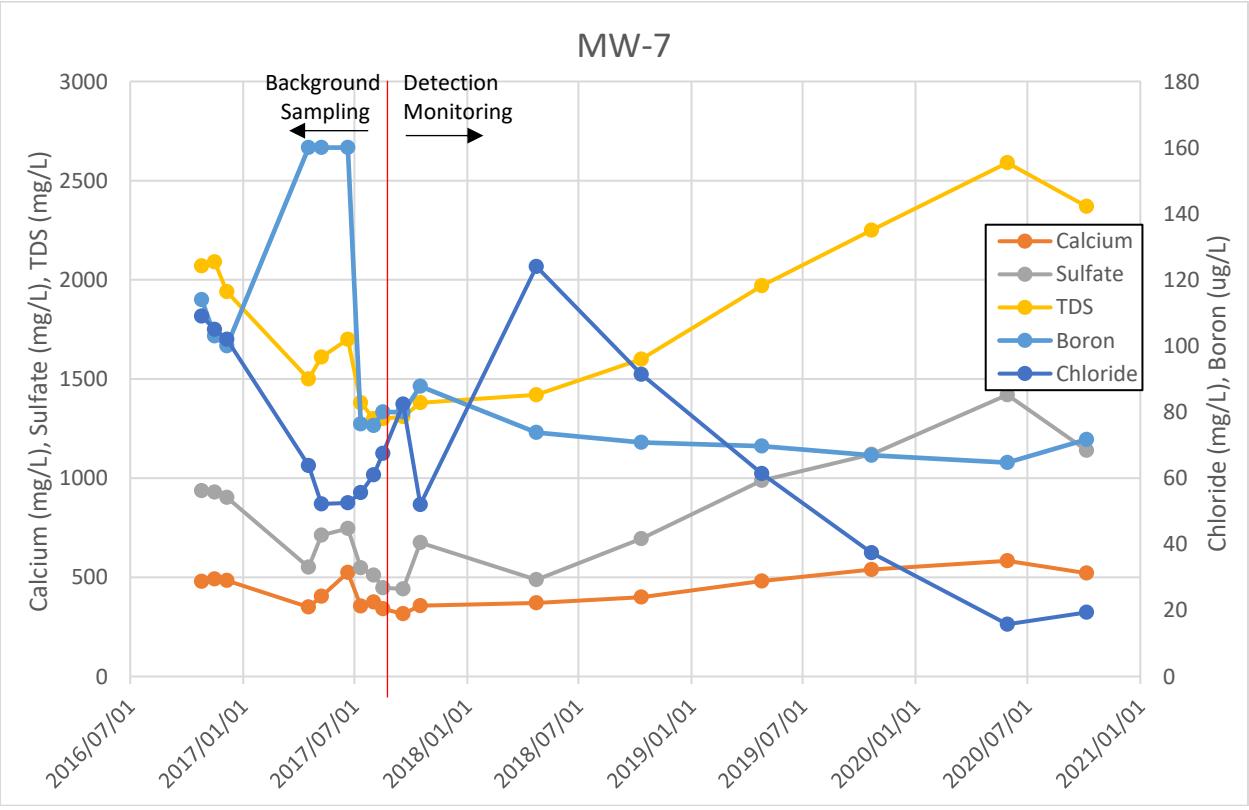
The October 2020 monitoring data does not indicate that an SSI has occurred at the Keewatin facility. However, the analysis is incomplete since MW-3R is unable to be monitored and the

replacement well 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 2020. It can be seen that Calcium, TDS, and Sulfate indicate increasing trends; Chloride and Boron indicate decreasing trends. All five parameters are now outside the range observed when conducting background monitoring for the facility in 2016 and 2017. The October 2020 event did indicate a break in the observed trends for all parameters.

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 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 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: October 2020 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III Parameters

APPENDIX C

2020 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 all 4 CCR wells at the facility to allow for visual assessment of Detection monitoring as it relates to background monitoring data.
    a. MW-7 indicates large trends in Chloride, TDS, and Sulfate, with Chloride decreasing, and TDS & Sulfate increasing
    b. MW-3R indicates decreasing trends in Calcium, Boron, Sulfate, and TDS
    c. 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=.02>.01, not statistically different, but close due to large non-detects in background dataset
        ii. Calcium (STT): p=.58
        iii. Chloride (STT): p=.81
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=.38
        vi. TDS (STT): p=.45
        vii. pH (STT): p=.93

    b. **MW-3R**
        i. Boron (TW): p=.07
        ii. Calcium (STT): p=.001, IS STATISTICALLY DIFFERENT. The Calcium results at MW-3R have been continually decreasing from the initial background monitoring. The cause for this is unknown. MW-3R was abandoned in 2019 and will no longer be monitored, therefore there is limited value for further assessment.
        iii. Chloride (STT): p=.02, not statistically different, but close, Chloride concentrations are elevated in the detection monitoring as compared to the background monitoring
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=0, IS STATISTIALLY DIFFERENT. All three Detection monitoring events indicated Sulfate concentrations below those observed in the initial background monitoring. The cause for this is unknown. MW-3R was abandoned in 2019 and will no longer be monitored, therefore there is limited value in further assessment.
        vi. TDS (STT): p=.001, IS STATISTICALLY DIFFERENT, very similar to Sulfate
        vii. pH (STT): p=.85

c. MW-8

i. Boron (TW): p=.51
ii. Calcium (STT): p=.001, IS STATISTICALLY DIFFERENT. 3 of the 4 Detection monitoring results were considerably below the background detection monitoring results (~12% below). However, the concentration appears to be increasing to be consistent with the background dataset. Will add Detection monitoring values to background data even though they are shown to be less than the background dataset, statistically.
iii. Chloride (STT): p=.009, IS STATISTICALLY DIFFERENT. 3 of the 4 Detection monitoring results were considerably HIGHER than the background dataset with a mean of 1.3 mg/L as compared to the background dataset mean of 1.1. (~20% higher). However, the very low concentrations make meaningful assessment difficult. Additionally, the upgradient well MW-7 has much higher Chloride concentrations (mean of 75 mg/L). Therefore, it would be very difficult to discern impact from upgradient watershed vs. the CCR unit. Chloride monitoring has limited value for our particular site.
iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
v. Sulfate (STT): p=0, IS STATISTICALLY DIFFERENT. All 4 Detection monitoring results were considerably below the background detection monitoring results with a mean of 600 mg/L as compared to 740 mg/L (~23% below). The Detection monitoring concentrations appear very stable with no trend and low deviation. Will add Detection monitoring values to background data even though they are shown to be less than the background dataset, statistically.
vi. TDS (STT): p=.001. IS STATISTICALLY DIFFERENT. Very similar to Sulfate results, only 17% difference between background and detection mean.
vii. pH (STT): p=.78, not statistically different.

d. MW-9

i. Boron (n/a): Nearly all non-detect, cannot conduct statistics, but no obvious change
ii. Calcium (STT): p=.26
iii. Chloride (STT): p=.08
iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no obvious change
v. Sulfate (STT): p=.414
vi. TDS (STT): p=.77
vii. pH (STT): p=.85

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)	87.8	130.1	87.8	87.8
Calcium (mg/L)	506.7	667.5	506.7	506.7
Chloride (mg/L)	81.94	81.94	81.94	81.94
Fluoride (mg/L)	0.11	0.11	0.11	0.11
pH (SU)	6.286 – 6.814	6.286 – 6.814	6.286 – 6.814	6.286 – 7.318
Sulfate (mg/L)	811.1	1937	811.1	811.1
Total Dissolved Solids (mg/L)	1742	3571	1742	1742

Table 2: Updated UPLs Based on ProUCL only				
Parameter	**MW-7**	**MW-3R**	**MW-8**	**MW-9**
Boron (ug/L)	113.5	n/a	100.8	50
Calcium (mg/L)	590.7	n/a	442.4	235.3
Chloride (mg/L)	136.9	n/a	1.50	23.59
Fluoride (mg/L)	0.11	n/a	0.11	0.11
pH (SU)	5.97 – 6.67	n/a	6.03 – 6.74	6.286 – 7.318
Sulfate (mg/L)	1231	n/a	877.2	534.3
Total Dissolved Solids (mg/L)	2441	n/a	1884	1256

7.) Determine UPL for each parameter at each well using Table 19 of the unified guidance with 1 of 2 sample, 3 wells, 12 background samples, 7 COCs, semi-annual assessment. See Table 3 Below.

Table 3: Updated UPLs Based on Unified Guidance Table 19				
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

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.