SKB Environmental Cloquet Landfill Inc.

2019 Coal Combustion Residuals Annual Monitoring Report

SKB Environmental Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota
Permit SW-399

January 31, 2020

2019 Coal Combustion Residuals Annual Monitoring Report

SKB Environmental Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota
Permit SW-399

Prepared for:
SKB Environmental Cloquet Landfill Inc.
251 Starkey Street
St. Paul, MN 55107

Prepared by:
Groundwater & Environmental Services, Inc.
1301 Corporate Center Drive, Suite 190
Eagan, MN 55121
TEL: 800-735-1077
www.gesonline.com

GES Project:
3505054

Date:
January 31, 2020

James F. Simonet, P.G.
Senior Project Hydrogeologist

Bonnie Janowiak, Ph. D.
Project Chemist

Brian Deering
Senior Project Manager

Kevin Michael Lienau, P.E.
Corporate Engineering Manager

Professional Engineer
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.
Signature:
Typed or Printed Name: Kevin Michael Lienau
Date: 01/31/2020 License Number: 25086

Table of Contents

Figures

Tables

Appendices

Appendix A – Field Data Sheets
Appendix B – Laboratory Analytical Reports
Appendix C – Statistical Evaluation Data

Acronyms

BTV	Background Threshold Values
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
COC	Chemicals of Concern
Eurofins TA	Eurofins Test America, Inc.
GES	Groundwater & Environmental Services, Inc.
mg/l	milligrams per liter
MPCA	Minnesota Pollution Control Agency
NGVD	National Geodetic Vertical Datum
pci/l	picoCuries per liter
QA/QC	Quality assurance/quality control
Report	Coal Combusion Residuals Annual Monitoring Report
SAP	Sampling Analysis Plan
SKB Cloquet Landfill	SKB Environmental Cloquet Landfill
SSI	statistically significant increase
USL	Upper Simultaneous Limit

1 Introduction

The *Coal Combustion Residuals Annual Monitoring Report* (Report) was prepared to summarize the results of the 2019 groundwater monitoring events and associated analysis for Appendix III to Part 257 at the SKB Environmental Cloquet Landfill (SKB Cloquet Landfill). The SKB Cloquet Landfill initiated operations under Minnesota Pollution Control Agency (MPCA) Site Permit Number SW-399 in 2011. The SKB Cloquet Landfill is located in Cloquet, Carlton County, Minnesota (**Figure 1**).

Per CFR 40.257.90 – 257.98, 2 groundwater monitoring events were conducted at the SKB Cloquet Landfill in the spring and fall of 2019. Analytical results from the groundwater monitoring events are compared and evaluated to Background Threshold Values (BTVs) established for the SKB Cloquet Landfill.

1.1 Scope of Work

The following scope of work was conducted for the 2019 Coal Combustion Residuals (CCR) groundwater monitoring events.

- Conduct 2 gauging and sampling events of the site's 7 monitoring wells.
- Measure static water elevations for each monitoring well to the nearest 0.01 feet from surveyed reference point.
- Record the volume of water removed from each monitoring well (in gallons) and total well volumes removed before sampling.
- Record field parameter stabilization results from each monitoring well.
- Conduct a statistical evaluation of groundwater sampling analytical data using ProUCL 5.0.00 (Singh, 2013) to determine background threshold values (BTVs) for each analyte.
- Select tolerance or prediction interval procedure for future statistical analysis of groundwater monitoring data.
- Prepare a CCR Annual Monitoring Report summarizing the groundwater sampling and statistical evaluation.

2 Site Background

2.1 Site Location and Description

The facility is located on a 59-acre parcel of land in Section 25, Township 49 North, Range 17 West, city of Cloquet, Carlton County, Minnesota. With reference to roadways, the facility is located south of Interstate 35 and west of Minnesota State Highway 45. The facility entrance is off Minnesota State Highway 45. The site location is depicted on **Figure 1** and **Figure 2** presents a Site Plan Map.

The nearest body of water is the St. Louis River, which is approximately 0.25 miles east of the facility. The facility's current maximum elevation is approximately 1,234 feet above the National Geodetic Vertical Datum of 1929 (NGVD 29) on top of the existing legacy demolition landfill. The lowest elevation is the old sand pit floor (Ulland Brothers sand pit) in the southwest corner of the property, which is approximately 1,143 feet (NGVD 29). Stormwater flows either to depressions around the site or to a temporary stormwater basin on the east side of Phase 1. The site is sandy and stormwater is allowed to infiltrate the ground at each of the stormwater ponding locations.

3 Monitoring Network Systems and Sampling Schedule

The groundwater monitoring network at SKB Cloquet Landfill was designed based on the analysis of local and regional hydrologic conditions. Currently the system consists of 7 monitoring wells. The monitoring wells used as data collection points have been divided into 2 groups for the purpose of this report:

- Upgradient Monitoring Point. The upgradient monitoring point consists of monitoring well P-1.
- Downgradient Monitoring Points. The downgradient monitoring points consist of monitoring wells downgradient of the compliance boundary. The downgradient monitoring wells are P-2, P-3, P-4R, P-5, P-6 and P-7.

For the CCR evaluation, a total of 2 groundwater monitoring events were conducted in 2019 on the following dates:

- April 9, 2019
- October 25, 2019

4 Groundwater Sampling Methodology

For the SKB Cloquet Landfill CCR sampling events, static groundwater elevations were measured to the nearest 0.01 feet in each monitoring well with a water interface probe prior to groundwater sample collection. Using a well dedicated, pneumatic low-flow bladder pump, each well was purged and field stabilization parameters including temperature, pH, and specific conductance were measured.

Groundwater samples were placed in laboratory-prepared containers and labeled with the following information:

- Unique sample number
- Site name
- Name of sampler
- Time and date

Immediately following collection, samples were placed on ice in a field cooler and shipped with a chain of custody form to a EurofinsTest America, Inc. (Eurofins TA) of Amherst, New York.

Groundwater samples obtained during the 2 sampling events in 2019 were analyzed for parameters specified in Appendix III to Part 257 and are noted below:

Appendix III

General Chemistry

- Chloride (Method 300.0)
- Fluoride (Method 300.0)
- Sulfate as SO_4 (Method 300.0)
- pH (Standard Method 4500 H+ B)
- Total Dissolved Solids (Standard Method 2540C)

Metals (Total)

- Boron (Method 200.7 Rev. 4.4)
- Calcium (Method 200.7 Rev. 4.4)

Quality assurance/quality control (QA/QC) samples including duplicate, field, and equipment samples were collected during each sampling event.

5 Groundwater Monitoring Results

5.1 Groundwater Elevation Data

Groundwater elevations recorded during the groundwater events are presented in **Table 1**. Groundwater contours maps were generated for the April 9 and October 25, 2019 monitoring events. Groundwater flow direction was calculated to be to the east-southeast (**Figures 3** and **4**).

5.2 Groundwater Analytical Data

Groundwater analytical results for the CCR monitoring events are presented in **Table 2**. QA/QC duplicate samples were collected for precision evaluation, but were not included in **Table 2**. A summary of the stabilization parameter tests performed for each well prior to sampling are provided in **Table 3** and copies of field sampling data sheets are in **Appendix A**. Laboratory analytical reports are included in **Appendix B**.

The calculated BTVs for the SKB Cloquet Landfill are provided in **Table 4**. Comparing the 2019 sampling results to the BTVs indicate that Boron exceeded the BTV of 0.38 mg/l and Total Dissolved Solids exceeded the BTV of 1,200 mg/l.

<u>Result Summary of BTV Exceedances</u>

Boron

- Downgradient monitoring well
  - P-4R (0.39 mg/l) (4/9/2019) – Exceedance but not statistically significant.

Total Dissolved Solids

- Downgradient monitoring well
  - P-2 (1,730 mg/l) (4/9/2019) – Exceedance but not statistically significant.

Quality assurance/quality control (QA/QC) samples including duplicate, field, and equipment samples were collected during each sampling event.

6 Statistical Evaluation of Data

This groundwater statistical evaluation for landfill monitoring is conducted in accordance with CFR 40.257.93(f)(3). Specifically, current concentrations were compared to the interwell upper simultaneous limits (USLs) in order to determine if a potential statistically significant increase (SSI) exists at downgradient wells.

The background dataset was determined for each well using analytical results ranging from Spring 2017 to the most recent sampling events in October of 2019.

Statistical evaluation of the 2017 - 2019 CCR groundwater monitoring data determined background concentrations and included:

1) Establishing final background datasets for each chemical of concern (COC) including outlier testing.

2) Deriving statistical, upper bound estimates of the background population for each COC using the final background datasets.

To establish final background datasets for each COC, descriptive statistics, outlier analysis and comparative statistical analysis performed on the background datasets confirmed the data in the background dataset for a given COC as representative of the 'true' background population. Descriptive statistics include the number of samples, the number of detections, the detection frequency, the maximum and minimum detected concentrations, the mean, and the standard deviation of the background data, all of which provide a preliminary examination of data.

Outlier analyses identified potential outliers not representative of the true background population. Including real outliers in a dataset can potentially lead to Type I or Type II errors (USEPA, 2009). Rosner's Outlier Test was performed on background datasets containing four (4) detected values or more (USEPA, 2009). Based on an alpha of 0.05, statistically significant outliers were removed from the background dataset in order to improve the power of the prediction limit (USEPA, 2009). The resulting background dataset for each well and COC is tabulated in **Attachment C**.

For the final background datasets after outlier analyses, summary statistics calculated the number of samples, number of detections, detection frequency, maximum and minimum detected concentrations, mean concentration, and the standard deviation. The final datasets calculations of the underlying distributions employing Shapiro-Wilks (e.g., normal, lognormal, gamma) using ProUCL 5.0.00 (Singh, 2013) before statistical limits were estimated allowed determination of the appropriate estimates that best describe the background datasets.

The following statistical limits for potential use as a background level (Background Threshold Values (BTVs)) were calculated using ProUCL 5.0.00 (Singh, 2013) for each COC when five or more detections were present:

- 95% upper simultaneous limit (USL)

The 95% USL was selected as the proposed BTVs as:

1) Many of the background datasets contain limited sample sizes and, therefore, are unlikely to represent the full range of natural ambient concentrations in the vicinity of the site.

2) This statistic should result in lower Type I error rates (i.e., false positives) and can be used to compare many observations.

If there were no detected results, the highest detection limit was proposed as the BTV. The calculated BTVs are included in **Table 4**. The statistical evaluation data is included in **Appendix C**.

6.1 SSI Determination

The detected concentrations for the first and second half 2019 sampling events with the respective USL are listed below. Compliance is determined by comparing the current concentration to the calculated USL.

Confirmation sampling conducted in the second half (fall) of 2019 indicated concentrations of Boron at P-4R and Total Dissolved Solids at P-2, but at concentrations below their respective USLs. Therefore, the Boron and Total Dissolved Solids exceedances are not confirmed SSIs.

Comparison of 2019 COC Concentrations to USLs

Monitoring Well	Analyte	First Half 2019 Conc (mg/L)	USL Conc (mg/L)	Second Half 2019 Conc (mg/L)	Percent Non-Detect	USL Notes
P-4R	Boron	**0.39**	0.38	0.31	0%	Non-parametric distribution Exceedance but not statistically significant
P-2	Total Dissolved Solids	**1,730**	1,200	598	0%	Non-parametric distribution Exceedance but not statistically significant

Notes:
Conc – Concentration
KM – Kaplan Meier method for non-detect substitution
Bolded concentration exceeds the respective USL.

7 Conclusions

The groundwater data collected in the 2017 – 2019 sampling events were statistically tested following the concepts outlined in this report to form a background data set. Interwell USLs were developed for Chloride, Fluoride, Sulfate as SO_4, Total Dissolved Solids, Boron, Calcium and in 7 monitoring wells (P-1, P-2, P-3, P-4R, P-5, P-6 and P-7). Upper and lower threshold values were developed for pH using USL and box plot statistics (**Appendix C**). The resulting USLs were compared to the current concentrations for each COC and well pair. Compliance is determined by comparing the currently detected concentrations to the calculated USL. A Boron concentration (0.39 mg/l) detected in monitoring well P-4R exceeded the calculated USL of 0.38 mg/l. A Total Dissolved Solids concentration (1,730 mg/l) detected in monitoring well P-2 exceeded the calculated USL of 1,200 mg/l. Resampling indicated the Boron and Total Dissolved Solids exceedances were not statistically significant.

8 Report Summary

Per CFR 40.257.90 – 257.98, 2 monitoring events were conducted at the SKB Cloquet Landfill in 2019. Groundwater samples were analyzed for parameters indicated in Appendix III to Part 257. Groundwater samples were collected from the monitoring network's 7 monitoring wells located at the SKB Cloquet Landfill during the 2 monitoring events. Groundwater elevation information from the monitoring data indicates an east to southeast groundwater flow beneath the landfill.

Groundwater sampling was performed in the spring and fall of 2019. The following analytes were reported above the calculated BTVs:

- A Boron groundwater concentration was detected above the BTV at a downgradient monitoring well (P-4R) during the spring 2019 sampling event. A subsequent confirmation sampling event in the fall of 2019 indicated that the Boron exceedance was not statistically significant.

- A Total Dissolved Solids groundwater concentration was detected above the BTV at a downgradient monitoring well (P-2) during the spring 2019 sampling event. A subsequent confirmation sampling event in the fall of 2019 indicated that the Total Dissolved Solids exceedance was not statistically significant.

9 Recommendations

CCR groundwater monitoring events will be conducted in the spring and fall of 2020. Groundwater samples will be analyzed for detection monitoring parameters specified in Appendix III to Part 257. An evaluation of groundwater analytical results after each monitoring event will be completed to determine if a significant increase over BTVs (**Table 4**) for one or more parameter listed in Appendix III to Part 257 has occurred at any monitoring well. The evaluation will be performed using a tolerance or prediction interval procedure (CFR 40.257.93(f)(3)). The level of each constituent in the monitoring well will be compared to an established BTV generated as the USL. Any single constituent that exceeds the BTV is considered to be an exceedance. Confirmation sampling will determine whether the BTV exceedance is statistically significant.

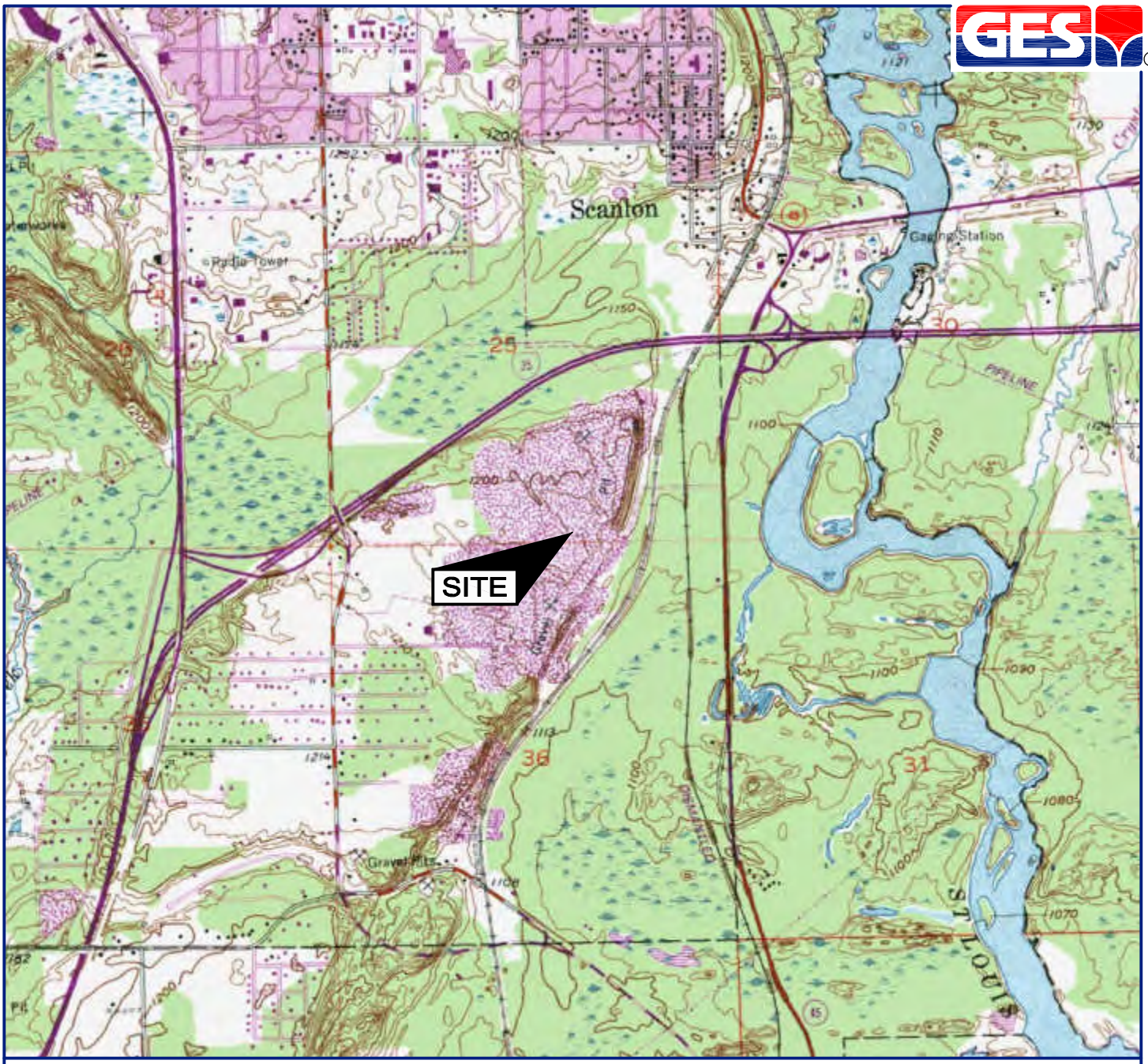
A 2020 Annual Groundwater Monitoring Report will be prepared and include sampling results from the 2020 CCR groundwater monitoring events and an evaluation of the analytical results as they pertained to BTVs.

References

Singh and Singh, 2013. *ProUCL Version 5.0.00 Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations,* United States Environmental Protection Agency

United States Environmental Protection Agency, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance.* Office of Resource Conservation and Recovery Program Implementation and Information Division, EPA 530/R-09-007, March 2009.

Figures

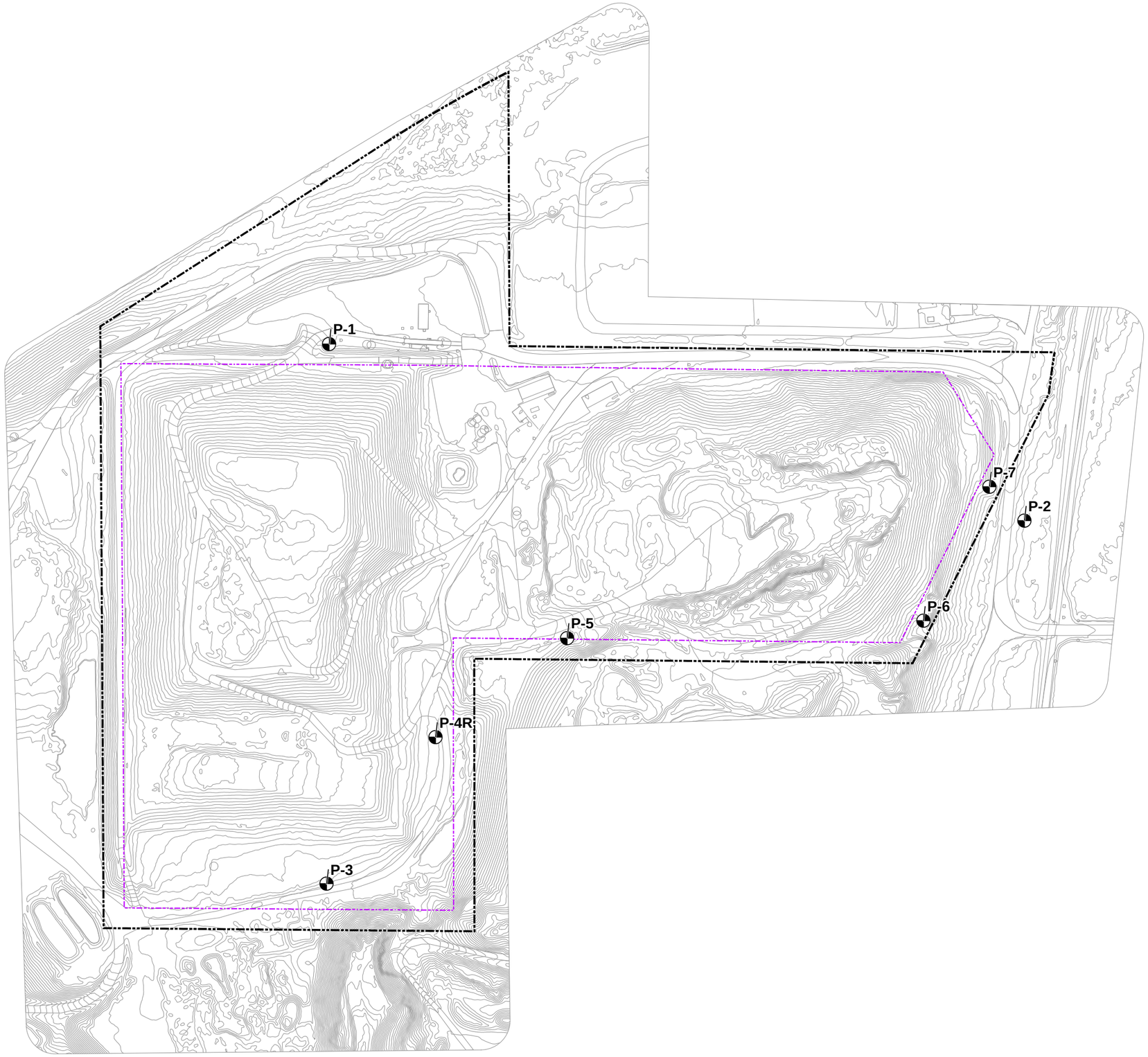


SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1993
CLOQUET, MINNESOTA
CONTOUR INTERVAL = 10'

QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	SITE LOCATION MAP
CHECKED BY:	SKB ENVIRONMENTAL SHAMROCK ENVIRONMENTAL LANDFILL 761 MINNESOTA STATE HIGHWAY 45 CLOQUET, MINNESOTA
REVIEWED BY:	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121
NORTH	SCALE IN FEET: 0 — 2000 / DATE: 1-8-14 / FIGURE: 1

M:\Graphics\3500-Minnesota\SKB Environmental\Cloquet\Cloquet SLM.dwg, Layout1, WShea



Legend

- MONITORING WELL
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS

Site Map

SKB Environmental
Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Drawn **GKS**
Designed **DMC**
Approved **JFS**

Date **1/9/20**
Figure **2**

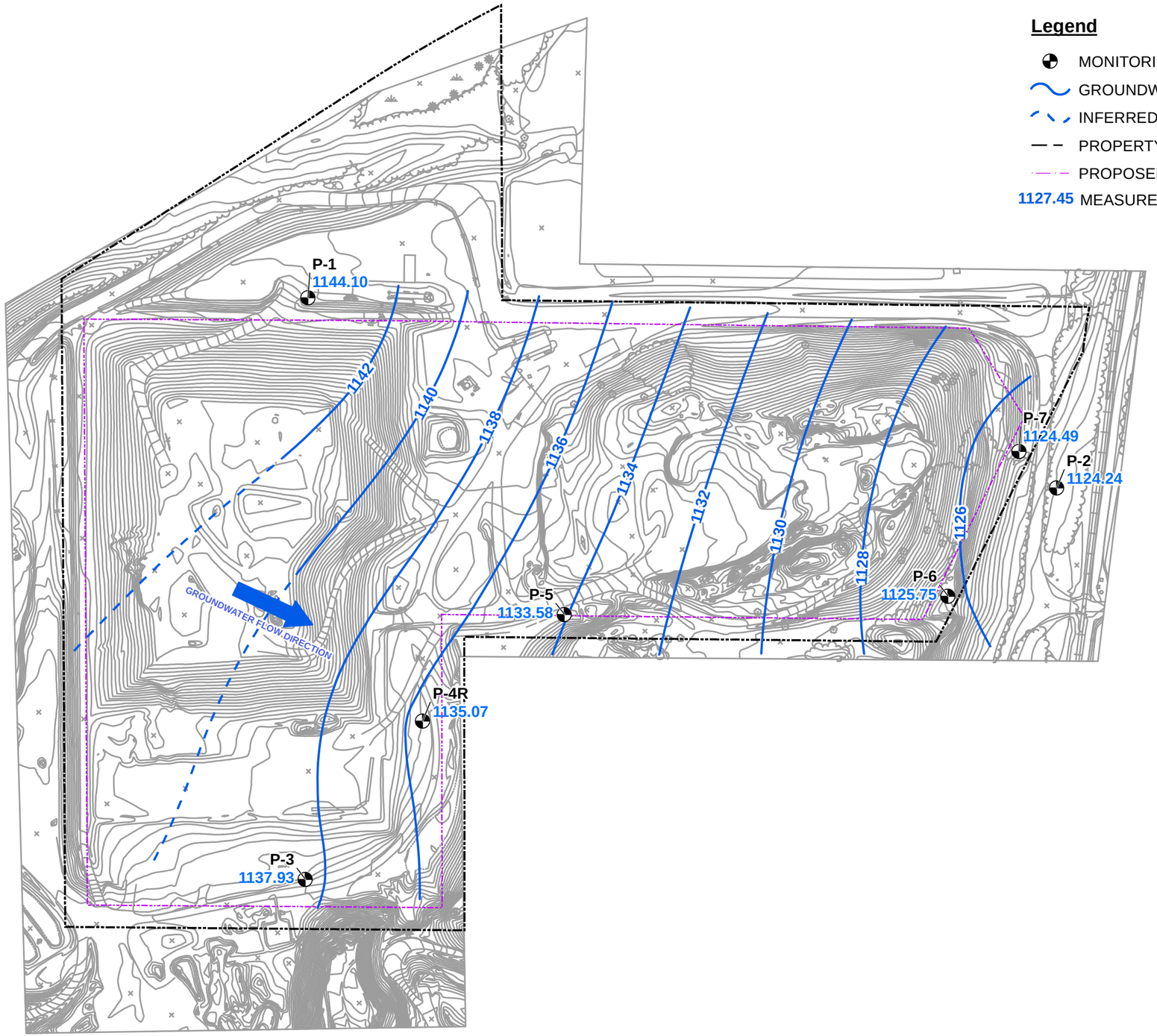
N

Scale In Feet (Approximate)

0 250

Groundwater & Environmental Services, Inc.

L:\Projects\SKB Environmental\Shamrock Environmental Landfill_Cloquet\GIS\Shamrock_Site_Map.mxd - Scale 1:3,000 - 1/9/2020 10:46:40 AM - GStewart -



Legend

- MONITORING WELL
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- INFERRED GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS
- 1127.45 MEASURED GROUNDWATER ELEVATION (ft MSL)

Groundwater Elevation Map
April 9, 2019

SKB Environmental
Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

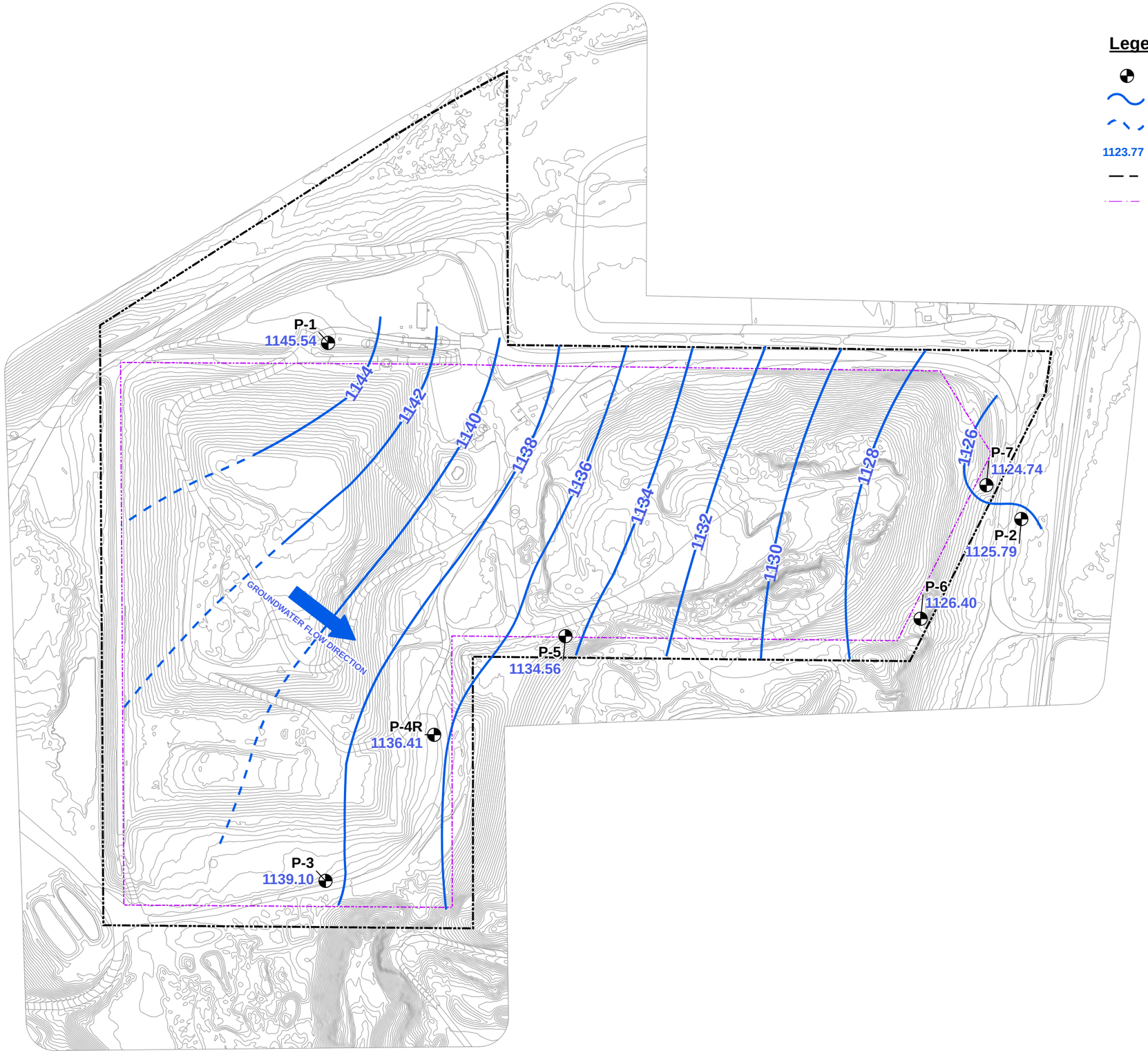
Drawn **AMW**
Designed **AMW**
Approved **DMC**

Date **6/13/19**
Figure **3**

N

Scale In Feet (Approximate)
0 250

Groundwater & Environmental Services, Inc.



Legend

- MONITORING WELL
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- INFERRED GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- 1123.77 MEASURED GROUNDWATER ELEVATION (ft MSL)
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS

Groundwater Elevation Map
October 25, 2019

SKB Environmental
Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Drawn **GKS**
Designed **DMC**
Approved **JFS**

Date **1/9/20**
Figure **4**

Scale In Feet (Approximate)
0 250

Groundwater & Environmental Services, Inc.

Tables

2019 CCR Annual Monitoring Report
SKB Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Table 1

Groundwater Elevations

Date	P-1	P-2	P-3	P-4R	P-5	P-6	P-7
04/09/2019	1144.10	1124.24	1137.93	1135.07	1133.58	1125.75	1124.49
10/25/2019	1145.54	1125.79	1139.10	1136.41	1134.56	1126.40	1124.74

2019 CCR Annual Monitoring Report
SKB Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Table 2

Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
P-1	04/09/2019	Boron	0.063	mg/l	7440-42-8
P-1	10/25/2019	Boron	0.067	mg/l	7440-42-8
P-1	04/09/2019	Calcium	145	mg/l	7440-70-2
P-1	10/25/2019	Calcium	160	mg/l	7440-70-2
P-1	04/09/2019	Chloride	192	mg/l	16887-00-6
P-1	10/25/2019	Chloride	87.5	mg/l	16887-00-6
P-1	04/09/2019	Fluoride	< 0.10	mg/l	16984-48-8
P-1	10/25/2019	Fluoride	0.050	mg/l	16984-48-8
P-1	04/09/2019	pH	6.9	pH UNITS	PH
P-1	10/25/2019	pH	6.8	pH UNITS	PH
P-1	04/09/2019	Sulfate as SO4	35.8	mg/l	14808-79-8
P-1	10/25/2019	Sulfate as SO4	< 5.0	mg/l	14808-79-8
P-1	04/09/2019	Total Dissolved Solids	728	mg/l	TDS
P-1	10/25/2019	Total Dissolved Solids	490	mg/l	TDS
P-2	04/09/2019	Boron	0.041	mg/l	7440-42-8
P-2	10/25/2019	Boron	0.060	mg/l	7440-42-8
P-2	04/09/2019	Calcium	101	mg/l	7440-70-2
P-2	10/25/2019	Calcium	185	mg/l	7440-70-2
P-2	04/09/2019	Chloride	169	mg/l	16887-00-6
P-2	10/25/2019	Chloride	287	mg/l	16887-00-6
P-2	04/09/2019	Fluoride	< 0.10	mg/l	16984-48-8
P-2	10/25/2019	Fluoride	0.050	mg/l	16984-48-8
P-2	04/09/2019	pH	6.8	pH UNITS	PH
P-2	10/25/2019	pH	6.8	pH UNITS	PH
P-2	04/09/2019	Sulfate as SO4	19.9	mg/l	14808-79-8
P-2	10/25/2019	Sulfate as SO4	< 5.0	mg/l	14808-79-8
P-2	04/09/2019	Total Dissolved Solids	**1730**	mg/l	TDS
P-2	10/25/2019	Total Dissolved Solids	598	mg/l	TDS
P-3	04/09/2019	Boron	< 0.020	mg/l	7440-42-8
P-3	10/25/2019	Boron	0.041	mg/l	7440-42-8
P-3	04/09/2019	Calcium	32.9	mg/l	7440-70-2
P-3	10/25/2019	Calcium	98.7	mg/l	7440-70-2
P-3	04/09/2019	Chloride	7.5	mg/l	16887-00-6
P-3	10/25/2019	Chloride	34.1	mg/l	16887-00-6
P-3	04/09/2019	Fluoride	0.12	mg/l	16984-48-8
P-3	10/25/2019	Fluoride	0.080	mg/l	16984-48-8
P-3	04/09/2019	pH	7.8	pH UNITS	PH
P-3	10/25/2019	pH	7.3	pH UNITS	PH
P-3	04/09/2019	Sulfate as SO4	7.6	mg/l	14808-79-8
P-3	10/25/2019	Sulfate as SO4	53.0	mg/l	14808-79-8
P-3	04/09/2019	Total Dissolved Solids	279	mg/l	TDS
P-3	10/25/2019	Total Dissolved Solids	237	mg/l	TDS
P-4R	04/09/2019	Boron	**0.39**	mg/l	7440-42-8
P-4R	10/25/2019	Boron	0.31	mg/l	7440-42-8
P-4R	04/09/2019	Calcium	76.4	mg/l	7440-70-2
P-4R	10/25/2019	Calcium	155	mg/l	7440-70-2
P-4R	04/09/2019	Chloride	31.2	mg/l	16887-00-6
P-4R	10/25/2019	Chloride	114	mg/l	16887-00-6
P-4R	04/09/2019	Fluoride	0.19	mg/l	16984-48-8
P-4R	10/25/2019	Fluoride	0.080	mg/l	16984-48-8
P-4R	04/09/2019	pH	7.7	pH UNITS	PH
P-4R	10/25/2019	pH	7.2	pH UNITS	PH

Table 2

Groundwater Analytical Data

Location	Date	Parameter	Result	Units	CAS #
P-4R	04/09/2019	Sulfate as SO4	85.7	mg/l	14808-79-8
P-4R	10/25/2019	Sulfate as SO4	139	mg/l	14808-79-8
P-4R	04/09/2019	Total Dissolved Solids	153	mg/l	TDS
P-4R	10/25/2019	Total Dissolved Solids	542	mg/l	TDS
P-5	04/09/2019	Boron	0.044	mg/l	7440-42-8
P-5	10/25/2019	Boron	0.044	mg/l	7440-42-8
P-5	04/09/2019	Calcium	159	mg/l	7440-70-2
P-5	10/25/2019	Calcium	177	mg/l	7440-70-2
P-5	04/09/2019	Chloride	232	mg/l	16887-00-6
P-5	10/25/2019	Chloride	232	mg/l	16887-00-6
P-5	04/09/2019	Fluoride	< 0.25	mg/l	16984-48-8
P-5	10/25/2019	Fluoride	0.050	mg/l	16984-48-8
P-5	04/09/2019	pH	6.9	pH UNITS	PH
P-5	10/25/2019	pH	6.9	pH UNITS	PH
P-5	04/09/2019	Sulfate as SO4	37.7	mg/l	14808-79-8
P-5	10/25/2019	Sulfate as SO4	56.1	mg/l	14808-79-8
P-5	04/09/2019	Total Dissolved Solids	395	mg/l	TDS
P-5	10/25/2019	Total Dissolved Solids	773	mg/l	TDS
P-6	04/09/2019	Boron	0.18	mg/l	7440-42-8
P-6	10/25/2019	Boron	0.28	mg/l	7440-42-8
P-6	04/09/2019	Calcium	165	mg/l	7440-70-2
P-6	10/25/2019	Calcium	154	mg/l	7440-70-2
P-6	04/09/2019	Chloride	95.7	mg/l	16887-00-6
P-6	10/25/2019	Chloride	122	mg/l	16887-00-6
P-6	04/09/2019	Fluoride	< 0.10	mg/l	16984-48-8
P-6	10/25/2019	Fluoride	0.050	mg/l	16984-48-8
P-6	04/09/2019	pH	7.1	pH UNITS	PH
P-6	10/25/2019	pH	7.1	pH UNITS	PH
P-6	04/09/2019	Sulfate as SO4	103	mg/l	14808-79-8
P-6	10/25/2019	Sulfate as SO4	151	mg/l	14808-79-8
P-6	04/09/2019	Total Dissolved Solids	764	mg/l	TDS
P-6	10/25/2019	Total Dissolved Solids	589	mg/l	TDS
P-7	04/09/2019	Boron	0.11	mg/l	7440-42-8
P-7	10/25/2019	Boron	0.10	mg/l	7440-42-8
P-7	04/09/2019	Calcium	143	mg/l	7440-70-2
P-7	10/25/2019	Calcium	131	mg/l	7440-70-2
P-7	04/09/2019	Chloride	109	mg/l	16887-00-6
P-7	10/25/2019	Chloride	70.2	mg/l	16887-00-6
P-7	04/09/2019	Fluoride	< 0.10	mg/l	16984-48-8
P-7	10/25/2019	Fluoride	0.090	mg/l	16984-48-8
P-7	04/09/2019	pH	7.2	pH UNITS	PH
P-7	10/25/2019	pH	7.2	pH UNITS	PH
P-7	04/09/2019	Sulfate as SO4	32.2	mg/l	14808-79-8
P-7	10/25/2019	Sulfate as SO4	25.5	mg/l	14808-79-8
P-7	04/09/2019	Total Dissolved Solids	620	mg/l	TDS
P-7	10/25/2019	Total Dissolved Solids	398	mg/l	TDS

Results in mg/l (milligrams per liter)
Bold = Indicates concentration above Background Threshold Value

2019 CCR Annual Monitoring Report
SKB Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Table 3

Well Stabilization Data

Well ID	Measurement Date	Field pH	Field Specific Conductivity umhos/cm	Field Temp dec c	Purge Rate ml/min
P-1	4/9/19 7:55	7.36	1400	8.83	1000
P-1	4/9/19 8:00	6.03	1400	7.10	1000
P-1	4/9/19 8:05	5.99	1410	6.91	1000
P-1	4/9/19 8:10	6.02	1420	6.86	1000
P-1	10/25/19 8:40	7.54	1190	9.05	1000
P-1	10/25/19 8:45	6.99	1180	10.20	1000
P-1	10/25/19 8:50	6.82	1140	10.29	1000
P-1	10/25/19 8:55	6.75	1150	10.32	1000
P-2	4/9/19 13:20	6.72	1080	2.57	1000
P-2	4/9/19 13:30	6.12	1040	2.51	1000
P-2	4/9/19 13:40	6.10	1040	2.50	1000
P-2	4/9/19 13:50	6.10	1040	2.49	1000
P-2	10/25/19 14:25	7.31	1300	10.03	1000
P-2	10/25/19 14:30	6.98	1350	9.94	1000
P-2	10/25/19 14:35	6.96	1350	9.94	1000
P-2	10/25/19 14:40	6.96	1360	9.98	1000
P-3	4/9/19 8:45	7.01	319	2.37	1000
P-3	4/9/19 8:50	6.87	303	2.08	1000
P-3	4/9/19 8:55	6.82	310	1.97	1000
P-3	4/9/19 9:00	6.81	316	1.94	1000
P-3	10/25/19 9:30	7.31	14	11.46	1000
P-3	10/25/19 9:35	7.41	718	11.39	1000
P-3	10/25/19 9:40	7.40	728	11.47	1000
P-3	10/25/19 9:45	7.40	727	11.48	1000
P-4R	4/9/19 10:05	7.56	811	1.63	1000
P-4R	4/9/19 10:10	7.56	809	1.62	1000
P-4R	4/9/19 10:15	7.56	807	1.62	1000
P-4R	4/9/19 10:20	7.56	807	1.62	1000
P-4R	10/25/19 10:45	7.59	1120	10.15	1000
P-4R	10/25/19 10:50	7.30	1160	11.72	1000
P-4R	10/25/19 10:55	7.27	1160	11.74	1000
P-4R	10/25/19 11:00	7.27	1150	11.77	1000
P-5	4/9/19 11:05	6.09	1710	7.98	1000
P-5	4/9/19 11:10	6.04	1700	8.25	1000
P-5	4/9/19 11:15	6.08	1700	8.30	1000
P-5	4/9/19 11:20	6.08	1700	8.30	1000
P-5	10/25/19 11:45	7.58	1510	10.79	1000
P-5	10/25/19 11:50	6.91	1560	9.53	1000
P-5	10/25/19 11:55	6.81	1560	9.52	1000
P-5	10/25/19 12:00	6.81	1560	9.51	1000
P-6	4/9/19 12:05	6.96	1500	5.34	1000
P-6	4/9/19 12:10	6.08	1490	7.33	1000
P-6	4/9/19 12:15	6.09	1490	7.41	1000
P-6	4/9/19 12:20	6.10	1490	7.43	1000

Table 3

Well Stabilization Data

Well ID	Measurement Date	Field pH	Field Specific Conductivity umhos/cm	Field Temp dec c	Purge Rate ml/min
P-6	10/25/19 13:05	7.57	1270	9.61	1000
P-6	10/25/19 13:10	7.33	1270	9.14	1000
P-6	10/25/19 13:15	7.19	1270	9.06	1000
P-6	10/25/19 13:20	7.15	1280	9.05	1000
P-7	4/9/19 12:50	6.62	1360	5.19	1000
P-7	4/9/19 12:55	6.25	1290	5.55	1000
P-7	4/9/19 13:00	6.24	1300	5.62	1000
P-7	4/9/19 13:05	6.25	1330	5.67	1000
P-7	10/25/19 13:50	7.52	1140	9.74	1000
P-7	10/25/19 13:55	7.21	1040	9.31	1000
P-7	10/25/19 14:00	7.20	1040	9.30	1000
P-7	10/25/19 14:05	7.20	1040	9.25	1000

Table 4

Background Threshold Values

Appendix III to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Boron	0.38	mg/l	7440-42-8
Calcium	235	mg/l	7440-70-2
Chloride	344	mg/l	16887-00-6
Fluoride	0.500	mg/l	15984-48-8
pH	lower 6.4 upper 8.1	pH UNITS	PH
Sulfate as SO4	161	mg/l	14808-79-8
Total Dissolved Solids	1200	mg/l	TDS

Results in mg/l (milligrams per liter)

Appendix A – Field Data Sheets

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Cloquet
Project Number: 330505
Sampling Device: dedicated Bladder Pump
Date: 4/9/19
Well ID: P-1

Tubing Diameter (ID): 2 inches
Depth to Water: 11.51 ft, TOC
Depth to Bottom of Well: 17.7 ft, TOC
Feet of Water in Well: 6.19 ft
Volume of Water in Well: 1.0 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uS / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	11.51	7.36	1,400	8.33	1
5	11.53	6.03	1,400	7.10	1
10	11.55	5.89	1,410	6.81	1
15	11.55	6.02	1,420	6.86	1

Purge Start Time: 9:10 Purge End Time: 9:30 Total Volume Purged: 3.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: NS

Weather Conditions: 34°F, cloudy, 15-20 mph NW

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Closure
Project Number: 350503
Sampling Device: Dedicated Bladder Pump
Date: 4/9/14
Well ID: P-3

Tubing Diameter (ID): 2 inches
Depth to Water: 8.15 ft, TOC
Depth to Bottom of Well: 12.95 ft, TOC
Feet of Water in Well: 4.8 ft
Volume of Water in Well: 0.8 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mho)	Temperature (°F) °C	Purge Rate (L/min)
1	8.15	7.04	319	2.37	1
5	8.17	6.87	303	2.08	1
10	8.17	6.82	310	1.97	1
15	8.17	6.81	316	1.94	1

Purge Start Time: 9:00 Purge End Time: 9:20 Total Volume Purged: 2.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel

Weather Conditions: 34°F, cloudy, 15-20 mph NW

Comments: Duplicate

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Hoppert
Project Number: 3505053
Sampling Device: Dedicated Bladder Pump
Date: 4/9/14
Well ID: PW

Tubing Diameter (ID): 2 inches
Depth to Water: 6.82 ft, TOC
Depth to Bottom of Well: 16.85 ft, TOC
Feet of Water in Well: 10.03 ft
Volume of Water in Well: 1.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (U mhos)	Temperature (°F)	Purge Rate (L/min)
1	6.82	7.56	811	1.63	1
5	6.84	7.56	809	1.62	1
10	6.84	7.56	807	1.62	1
15	6.84	7.56	807	1.62	1

Purge Start Time: 1020 Purge End Time: 1046 Total Volume Purged: 5.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Scalagi

Weather Conditions: 32°F, cloudy, 15 ~ 20 mph NW

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SLB Hagnet	Tubing Diameter (ID):	2	inches
Project Number:	350505	Depth to Water:	37.3	ft, TOC
Sampling Device:	Dedicated Bladder Pump	Depth to Bottom of Well:	32.66	ft, TOC
Date:	4/9/19	Feet of Water in Well:	4.64	ft
Well ID:	P-5	Volume of Water in Well:	0.75	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (U mhos)	Temperature (°F)	Purge Rate (L/min)
1	32.66	6.09	1,710	7.98	1
5	32.68	6.04	1,700	8.25	1
10	32.68	6.08	1,700	8.30	1
15	32.68	6.08	1,700	8.30	1

Purge Start Time: 11:20 Purge End Time: 11:40 Total Volume Purged: 2.3 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel

Weather Conditions: 30°F cloudy, 20-25 mph N

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Eloquet
Project Number: 3505053
Sampling Device: Dedicated Bladder Pump
Date: 4/9/18
Well ID: P-6

Tubing Diameter (ID): 2 inches
Depth to Water: 29.60 ft, TOC
Depth to Bottom of Well: 36.2 ft, TOC
Feet of Water in Well: 6.52 ft
Volume of Water in Well: 1.1 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ / micro)	Temperature (°F)	Purge Rate (L/min)
1	29.60	6.96	1,500	5.34	1
5	29.70	6.08	1,490	7.33	1
10	29.70	6.09	1,490	7.41	1
15	29.70	6.10	1,490	7.43	1

Purge Start Time: 12:20 Purge End Time: 12:40 Total Volume Purged: 3.3 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel
Weather Conditions: 31 °F, cloudy 15 - 20 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Liquet
Project Number: 3505053
Sampling Device: Dedicated Bladder Pump
Date: 4/9/14
Well ID: P-7

Tubing Diameter (ID): 2 inches
Depth to Water: 14.90 ft, TOC
Depth to Bottom of Well: 19.6 ft, TOC
Feet of Water in Well: 4.7 ft
Volume of Water in Well: 0.75 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (w/ units)	Temperature (°F)	Purge Rate (L/min)
1	14.90	6.62	1,360	5.19	1
5	15.07	6.25	1,290	5.55	1
10	15.18	6.24	1,300	5.62	1
15	15.28	6.25	1,330	5.67	1

Purge Start Time: 13:05 Purge End Time: 13:25 Total Volume Purged: 2.3 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel
Weather Conditions: 28°F, cloudy, 15-20 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: GLB Project
Project Number: 3503053
Sampling Device: Dedicated Bladder Pump
Date: 4/9/19
Well ID: P-2

Tubing Diameter (ID): 2 inches
Depth to Water: 7.55 ft, TOC
Depth to Bottom of Well: 10.4 ft, TOC
Feet of Water in Well: 2.85 ft
Volume of Water in Well: 0.46 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (U /mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	7.55	6.72	1,090	2.51	1
10	7.97	6.12	1,040	2.51	1
20	8.62	6.10	1,040	2.50	1
30	9.56	6.10	1,040	2.49	1

Purge Start Time: 13:50 Purge End Time: 14:20 Total Volume Purged: 1.4 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel

Weather Conditions: 25°F, cloudy, 15-20 mph N

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLCB Cloquet
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 10/25/19
Well ID: P-1

Tubing Diameter (ID): 2 inches
Depth to Water: 10.07 ft, TOC
Depth to Bottom of Well: 17.7 ft, TOC
Feet of Water in Well: 7.63 ft
Volume of Water in Well: 1.25 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ/mho)	Temperature (°F)	Purge Rate (L/min)
1	10.07	7.54	1,190	9.05	1
5	10.10	6.99	1,180	10.20	1
10	10.10	6.82	1,140	10.29	1
15	10.10	6.75	1,150	10.32	1

Purge Start Time: 9:35 Purge End Time: 9:15 Total Volume Purged: 4.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel

Weather Conditions: 28°F, mostly cloudy

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Moquet
Project Number:
Sampling Device: Dedicated Bladder Pump
Date:
Well ID: P-3

Tubing Diameter (ID): 2 inches
Depth to Water: 6.98 ft, TOC
Depth to Bottom of Well: 12.95 ft, TOC
Feet of Water in Well: 5.97 ft
Volume of Water in Well: 0.97 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (W /mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	6.98	7.31	14	11.46	1
5	7.00	7.41	718	11.39	1
10	7.00	7.40	728	11.47	1
15	7.00	7.40	729	11.48	1

Purge Start Time: 7:45 Purge End Time: 10:05 Total Volume Purged: 3.0 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schlegel
Weather Conditions: 36°F, snowy, 5-10 mph S
Comments: Duplicate Collected

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Hangar
Project Number:
Sampling Device: Dedicated Bladder pump
Date: 10/25/19
Well ID: P-42

Tubing Diameter (ID): 1 inches
Depth to Water: 5.48 ft, TOC
Depth to Bottom of Well: 16.9 ft, TOC
Feet of Water in Well: 11.42 ft
Volume of Water in Well: 1.9 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F)	Purge Rate (L/min)
1	5.48	7.59	1,120	10.15	1
5	5.50	7.30	1,160	11.72	1
10	5.50	7.27	1,160	11.74	1
15	5.50	7.27	1,150	11.77	1

Purge Start Time: 11:00 Purge End Time: 11:20 Total Volume Purged: 6.0 gal

Approximate Purge Rate: 1L/min Purged/Sampled by: N. Schlageter

Weather Conditions: 39°F, sunny, 10-5 mph S

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Cloquet
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 10/25/19
Well ID: P-6

Tubing Diameter (ID): 2 inches
Depth to Water: 29.05 ft, TOC
Depth to Bottom of Well: 36.2 ft, TOC
Feet of Water in Well: 7.17 ft
Volume of Water in Well: 1.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C.	Purge Rate (L/min)
1	29.05	7.57	1,270	9.61	1
5	29.05	7.33	1,270	9.14	1
10	29.05	7.19	1,270	9.08	1
15	29.05	7.15	1,280	9.05	1

Purge Start Time: 13:20 Purge End Time: 13:40 Total Volume Purged: 3.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel

Weather Conditions: 48°F, sunny, 10-15 mph S

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Cleaver
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 10/25/19
Well ID: P-5

Tubing Diameter (ID): 2 inches
Depth to Water: 31.68 ft, TOC
Depth to Bottom of Well: 37.3 ft, TOC
Feet of Water in Well: 5.62 ft
Volume of Water in Well: 0.9 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ /mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	31.68	7.58	1,510	10.79	1
5	31.70	6.91	1,560	9.53	1
10	31.70	6.81	1,560	9.52	1
15	31.70	6.81	1,560	9.51	1
~~20~~	~~31.70~~				

Purge Start Time: 12:00 Purge End Time: 12:20 Total Volume Purged: 3.0 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schlegel
Weather Conditions: 45°F, sunny, 10-15 mph S
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Cloquet
Project Number:
Sampling Device: Desicated Bladder Pump
Date: 10/25/19
Well ID: P-7

Tubing Diameter (ID): 2 inches
Depth to Water: 14.65 ft, TOC
Depth to Bottom of Well: 19.6 ft, TOC
Feet of Water in Well: 4.95 ft
Volume of Water in Well: 0.8 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos)	Temperature (°F)	Purge Rate (L/min)
1	14.65	7.52	1,140	9.74	1
5	15.55	7.21	1,040	9.31	1
10	16.72	7.20	1,040	9.38	1
15	17.86	7.20	1,040	9.25	1

Purge Start Time: 14:05 Purge End Time: 14:25 Total Volume Purged: 1.5 gal
Approximate Purge Rate: 1L/min Purged/Sampled by: N. Schlueter
Weather Conditions: 48°F, Sunny, 10-15 mph S
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SLCB Closet		Tubing Diameter (ID):	2	inches
Project Number:			Depth to Water:	6.00	ft, TOC
Sampling Device:	Dedicated Bladder Pump		Depth to Bottom of Well:	10.40	ft, TOC
Date:	10/25/19		Feet of Water in Well:	4.40	ft
Well ID:	P-2		Volume of Water in Well:	0.7	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	6.00	7.31	1,300	10.03	1
5	7.00	6.98	1,350	9.44	1
10	8.00	6.96	1,350	9.94	1
15	9.00	6.96	1,360	9.98	1

Purge Start Time: 14:40 Purge End Time: 15:00 Total Volume Purged: 1.5 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: K. Schlegel

Weather Conditions: 46°F cloudy, 10-15 mph SW

Comments:

Appendix B – Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-151675-1
Client Project/Site: SKB Cloquet - CCR Groundwater
Sampling Event: CCR Groundwater

For:
Waste Connections, Inc.
13425 Courthouse Blvd
Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann

Authorized for release by:
5/15/2019 5:03:27 PM

Ryan VanDette, Project Manager II
(716)504-9830
ryan.vandette@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Qualifiers

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-151675-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-151675-1

Comments
No additional comments.

Receipt
The samples were received on 4/10/2019 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0º C.

HPLC/IC
Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: P-1 (480-151675-1), P-2 (480-151675-2), P-4R (480-151675-4), P-5 (480-151675-5), P-6 (480-151675-6) and P-7 (480-151675-7). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: P-1 (480-151675-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples have been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: P-1 (480-151675-1), P-2 (480-151675-2), P-3 (480-151675-3), P-5 (480-151675-5), P-6 (480-151675-6), P-7 (480-151675-7), DUPLICATE (480-151675-8), FIELD BLANK (480-151675-9) and EQUIP BLANK (480-151675-10).

Method(s) SM 2540C: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: P-2 (480-151675-2). The reporting limits (RLs) have been adjusted proportionately.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-1 — Lab Sample ID: 480-151675-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.063		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	145		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	192		1.0		mg/L	2		300.0	Total/NA
Sulfate	35.8		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	728		10.0		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-2 — Lab Sample ID: 480-151675-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.041		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	101		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	169		1.0		mg/L	2		300.0	Total/NA
Sulfate	19.9		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	1730		20.0		mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-3 — Lab Sample ID: 480-151675-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	32.9		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	7.5		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.12		0.050		mg/L	1		300.0	Total/NA
Sulfate	7.6		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	279		10.0		mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-4R — Lab Sample ID: 480-151675-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.39		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	76.4		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	31.2		1.0		mg/L	2		300.0	Total/NA
Fluoride	0.19		0.10		mg/L	2		300.0	Total/NA
Sulfate	85.7		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	153		10.0		mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-5 — Lab Sample ID: 480-151675-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.044		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	159		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	232		2.5		mg/L	5		300.0	Total/NA
Sulfate	37.7		10.0		mg/L	5		300.0	Total/NA
Total Dissolved Solids	395		10.0		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-6 — Lab Sample ID: 480-151675-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.18		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	165		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	95.7		1.0		mg/L	2		300.0	Total/NA
Sulfate	103		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	764		10.0		mg/L	1		SM 2540C	Total/NA
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-7 — Lab Sample ID: 480-151675-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.11		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	143		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	109		1.0		mg/L	2		300.0	Total/NA
Sulfate	32.2		4.0		mg/L	2		300.0	Total/NA
Total Dissolved Solids	620		10.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUPLICATE — Lab Sample ID: 480-151675-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	33.3		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Chloride	7.7		0.50		mg/L	1		300.0	Total/NA
Fluoride	0.12		0.050		mg/L	1		300.0	Total/NA
Sulfate	7.7		2.0		mg/L	1		300.0	Total/NA
Total Dissolved Solids	146		10.0		mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: FIELD BLANK — Lab Sample ID: 480-151675-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.12		0.050		mg/L	1		300.0	Total/NA
pH	6.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: EQUIP BLANK — Lab Sample ID: 480-151675-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.13		0.050		mg/L	1		300.0	Total/NA
pH	6.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	21.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-1
Date Collected: 04/09/19 08:30
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-1
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.063		0.020		mg/L		04/12/19 08:54	04/13/19 15:11	1
Calcium	145		0.50		mg/L		04/12/19 08:54	04/13/19 15:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	192		1.0		mg/L			04/12/19 14:12	2
Fluoride	ND		0.10		mg/L			04/15/19 11:44	2
Sulfate	35.8		4.0		mg/L			04/12/19 14:12	2
Total Dissolved Solids	728		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			04/22/19 09:40	1
Temperature	21.4	HF	0.001		Degrees C			04/22/19 09:40	1

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: P-2
Lab Sample ID: 480-151675-2
Date Collected: 04/09/19 14:25
Matrix: Water
Date Received: 04/10/19 09:15

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.041		0.020		mg/L		04/12/19 08:54	04/13/19 15:25	1
Calcium	101		0.50		mg/L		04/12/19 08:54	04/13/19 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	169		1.0		mg/L			04/12/19 14:27	2
Fluoride	ND		0.10		mg/L			04/12/19 14:27	2
Sulfate	19.9		4.0		mg/L			04/12/19 14:27	2
Total Dissolved Solids	1730		20.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.8	HF	0.1		SU			04/22/19 09:46	1
Temperature	21.5	HF	0.001		Degrees C			04/22/19 09:46	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-3

Date Collected: 04/09/19 09:20
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-3

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		04/12/19 08:54	04/13/19 15:29	1
Calcium	**32.9**		0.50		mg/L		04/12/19 08:54	04/13/19 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.5**		0.50		mg/L			04/12/19 14:41	1
Fluoride	**0.12**		0.050		mg/L			04/12/19 14:41	1
Sulfate	**7.6**		2.0		mg/L			04/12/19 14:41	1
Total Dissolved Solids	**279**		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			04/22/19 09:48	1
Temperature	**21.7**	**HF**	0.001		Degrees C			04/22/19 09:48	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-4R
Date Collected: 04/09/19 10:40
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-4
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.39		0.020		mg/L		04/12/19 08:54	04/13/19 15:32	1
Calcium	76.4		0.50		mg/L		04/12/19 08:54	04/13/19 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.2		1.0		mg/L			04/12/19 14:56	2
Fluoride	0.19		0.10		mg/L			04/12/19 14:56	2
Sulfate	85.7		4.0		mg/L			04/12/19 14:56	2
Total Dissolved Solids	153		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.1		SU			05/10/19 23:01	1
Temperature	19.7	HF	0.001		Degrees C			05/10/19 23:01	1

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: P-5
Lab Sample ID: 480-151675-5
Date Collected: 04/09/19 11:40
Matrix: Water
Date Received: 04/10/19 09:15

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.044		0.020		mg/L		04/12/19 08:54	04/13/19 15:36	1
Calcium	159		0.50		mg/L		04/12/19 08:54	04/13/19 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	232		2.5		mg/L			04/12/19 15:11	5
Fluoride	ND		0.25		mg/L			04/12/19 15:11	5
Sulfate	37.7		10.0		mg/L			04/12/19 15:11	5
Total Dissolved Solids	395		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			04/22/19 09:51	1
Temperature	21.6	HF	0.001		Degrees C			04/22/19 09:51	1

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-6

Date Collected: 04/09/19 12:40
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-6

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.18		0.020		mg/L		04/12/19 08:54	04/13/19 15:40	1
Calcium	165		0.50		mg/L		04/12/19 08:54	04/13/19 15:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	95.7		1.0		mg/L			04/12/19 15:25	2
Fluoride	ND		0.10		mg/L			04/12/19 15:25	2
Sulfate	103		4.0		mg/L			04/12/19 15:25	2
Total Dissolved Solids	764		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			04/22/19 09:54	1
Temperature	21.5	HF	0.001		Degrees C			04/22/19 09:54	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-7
Date Collected: 04/09/19 13:25
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-7
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.11		0.020		mg/L		04/12/19 08:54	04/13/19 15:43	1
Calcium	143		0.50		mg/L		04/12/19 08:54	04/13/19 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	109		1.0		mg/L			04/12/19 16:53	2
Fluoride	ND		0.10		mg/L			04/12/19 16:53	2
Sulfate	32.2		4.0		mg/L			04/12/19 16:53	2
Total Dissolved Solids	620		10.0		mg/L			04/15/19 01:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			04/22/19 09:56	1
Temperature	21.4	HF	0.001		Degrees C			04/22/19 09:56	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: DUPLICATE
Date Collected: 04/09/19 00:00
Date Received: 04/10/19 09:15

Lab Sample ID: 480-151675-8
Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		04/12/19 08:54	04/13/19 15:47	1
Calcium	**33.3**		0.50		mg/L		04/12/19 08:54	04/13/19 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.7**		0.50		mg/L			04/12/19 17:07	1
Fluoride	**0.12**		0.050		mg/L			04/12/19 17:07	1
Sulfate	**7.7**		2.0		mg/L			04/12/19 17:07	1
Total Dissolved Solids	**146**		10.0		mg/L			04/15/19 09:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**HF**	0.1		SU			04/22/19 09:59	1
Temperature	**21.3**	**HF**	0.001		Degrees C			04/22/19 09:59	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: FIELD BLANK

Lab Sample ID: 480-151675-9

Date Collected: 04/09/19 14:30

Matrix: Water

Date Received: 04/10/19 09:15

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		04/12/19 08:54	04/13/19 15:50	1
Calcium	ND		0.50		mg/L		04/12/19 08:54	04/13/19 15:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/12/19 17:22	1
Fluoride	**0.12**		0.050		mg/L			04/12/19 17:22	1
Sulfate	ND		2.0		mg/L			04/12/19 17:22	1
Total Dissolved Solids	ND		10.0		mg/L			04/15/19 09:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.2**	**HF**	0.1		SU			04/22/19 10:01	1
Temperature	**21.3**	**HF**	0.001		Degrees C			04/22/19 10:01	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: EQUIP BLANK

Lab Sample ID: 480-151675-10

Date Collected: 04/09/19 14:35

Matrix: Water

Date Received: 04/10/19 09:15

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		04/12/19 08:54	04/13/19 15:54	1
Calcium	ND		0.50		mg/L		04/12/19 08:54	04/13/19 15:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/12/19 17:36	1
Fluoride	**0.13**		0.050		mg/L			04/12/19 17:36	1
Sulfate	ND		2.0		mg/L			04/12/19 17:36	1
Total Dissolved Solids	ND		10.0		mg/L			04/15/19 09:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.0**	**HF**	0.1		SU			04/22/19 10:04	1
Temperature	**21.4**	**HF**	0.001		Degrees C			04/22/19 10:04	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-467423/1-A
Matrix: Water
Analysis Batch: 467924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		04/12/19 08:54	04/13/19 14:17	1
Calcium	ND		0.50		mg/L		04/12/19 08:54	04/13/19 14:17	1

Lab Sample ID: LCS 480-467423/2-A
Matrix: Water
Analysis Batch: 467924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.200	0.194		mg/L		97	85 - 115
Calcium	10.0	9.78		mg/L		98	85 - 115

Lab Sample ID: 480-151675-10 MS
Matrix: Water
Analysis Batch: 467924

Client Sample ID: EQUIP BLANK
Prep Type: Total/NA
Prep Batch: 467423

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	ND		0.200	0.190		mg/L		95	70 - 130
Calcium	ND		10.0	9.52		mg/L		95	70 - 130

Lab Sample ID: 480-151675-10 MSD
Matrix: Water
Analysis Batch: 467924

Client Sample ID: EQUIP BLANK
Prep Type: Total/NA
Prep Batch: 467423

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	ND		0.200	0.199		mg/L		99	70 - 130	5	20
Calcium	ND		10.0	10.06		mg/L		101	70 - 130	5	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-467623/28
Matrix: Water
Analysis Batch: 467623

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/12/19 16:38	1
Fluoride	ND		0.050		mg/L			04/12/19 16:38	1
Sulfate	ND		2.0		mg/L			04/12/19 16:38	1

Lab Sample ID: MB 480-467623/4
Matrix: Water
Analysis Batch: 467623

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/12/19 10:43	1
Fluoride	ND		0.050		mg/L			04/12/19 10:43	1
Sulfate	ND		2.0		mg/L			04/12/19 10:43	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-467623/27
Matrix: Water
Analysis Batch: 467623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.45		mg/L		103	90 - 110
Fluoride	5.00	5.04		mg/L		101	90 - 110
Sulfate	50.0	50.58		mg/L		101	90 - 110

Lab Sample ID: LCS 480-467623/3
Matrix: Water
Analysis Batch: 467623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.93		mg/L		100	90 - 110
Fluoride	5.00	4.93		mg/L		99	90 - 110
Sulfate	50.0	49.17		mg/L		98	90 - 110

Lab Sample ID: 480-151675-6 MS
Matrix: Water
Analysis Batch: 467623

Client Sample ID: P-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	95.7		100	201.8	E	mg/L		106	81 - 120
Fluoride	ND		10.0	10.34		mg/L		103	82 - 120
Sulfate	103		100	202.9	E	mg/L		100	80 - 120

Lab Sample ID: MB 480-467919/4
Matrix: Water
Analysis Batch: 467919

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			04/15/19 11:29	1
Fluoride	ND		0.050		mg/L			04/15/19 11:29	1
Sulfate	ND		2.0		mg/L			04/15/19 11:29	1

Lab Sample ID: LCS 480-467919/3
Matrix: Water
Analysis Batch: 467919

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	47.62		mg/L		95	90 - 110
Fluoride	5.00	4.81		mg/L		96	90 - 110
Sulfate	50.0	49.64		mg/L		99	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-467863/1
Matrix: Water
Analysis Batch: 467863

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			04/15/19 01:38	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 480-467863/2
Matrix: Water
Analysis Batch: 467863

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			500	489.0		mg/L		98	85 - 115		

Lab Sample ID: 480-151675-7 DU
Matrix: Water
Analysis Batch: 467863

Client Sample ID: P-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	620			649.0		mg/L				5	10

Lab Sample ID: MB 480-467934/1
Matrix: Water
Analysis Batch: 467934

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			04/15/19 09:54	1

Lab Sample ID: LCS 480-467934/2
Matrix: Water
Analysis Batch: 467934

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			500	485.0		mg/L		97	85 - 115		

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-469109/23
Matrix: Water
Analysis Batch: 469109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.1		SU		101	99 - 101		

Lab Sample ID: LCS 480-472393/1
Matrix: Water
Analysis Batch: 472393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: 480-151675-4 DU
Matrix: Water
Analysis Batch: 472393

Client Sample ID: P-4R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.7	HF		7.7		SU				0.9	5
Temperature	19.7	HF		19.4		Degrees C				2	10

Metals

Prep Batch: 467423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	200.7	
480-151675-2	P-2	Total/NA	Water	200.7	
480-151675-3	P-3	Total/NA	Water	200.7	
480-151675-4	P-4R	Total/NA	Water	200.7	
480-151675-5	P-5	Total/NA	Water	200.7	
480-151675-6	P-6	Total/NA	Water	200.7	
480-151675-7	P-7	Total/NA	Water	200.7	
480-151675-8	DUPLICATE	Total/NA	Water	200.7	
480-151675-9	FIELD BLANK	Total/NA	Water	200.7	
480-151675-10	EQUIP BLANK	Total/NA	Water	200.7	
MB 480-467423/1-A	Method Blank	Total/NA	Water	200.7	
LCS 480-467423/2-A	Lab Control Sample	Total/NA	Water	200.7	
480-151675-10 MS	EQUIP BLANK	Total/NA	Water	200.7	
480-151675-10 MSD	EQUIP BLANK	Total/NA	Water	200.7	

Analysis Batch: 467924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-2	P-2	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-3	P-3	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-4	P-4R	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-5	P-5	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-6	P-6	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-7	P-7	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-8	DUPLICATE	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-9	FIELD BLANK	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-10	EQUIP BLANK	Total/NA	Water	200.7 Rev 4.4	467423
MB 480-467423/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	467423
LCS 480-467423/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-10 MS	EQUIP BLANK	Total/NA	Water	200.7 Rev 4.4	467423
480-151675-10 MSD	EQUIP BLANK	Total/NA	Water	200.7 Rev 4.4	467423

General Chemistry

Analysis Batch: 467623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	300.0	
480-151675-2	P-2	Total/NA	Water	300.0	
480-151675-3	P-3	Total/NA	Water	300.0	
480-151675-4	P-4R	Total/NA	Water	300.0	
480-151675-5	P-5	Total/NA	Water	300.0	
480-151675-6	P-6	Total/NA	Water	300.0	
480-151675-7	P-7	Total/NA	Water	300.0	
480-151675-8	DUPLICATE	Total/NA	Water	300.0	
480-151675-9	FIELD BLANK	Total/NA	Water	300.0	
480-151675-10	EQUIP BLANK	Total/NA	Water	300.0	
MB 480-467623/28	Method Blank	Total/NA	Water	300.0	
MB 480-467623/4	Method Blank	Total/NA	Water	300.0	
LCS 480-467623/27	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-467623/3	Lab Control Sample	Total/NA	Water	300.0	
480-151675-6 MS	P-6	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 467863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	SM 2540C	
480-151675-2	P-2	Total/NA	Water	SM 2540C	
480-151675-3	P-3	Total/NA	Water	SM 2540C	
480-151675-4	P-4R	Total/NA	Water	SM 2540C	
480-151675-5	P-5	Total/NA	Water	SM 2540C	
480-151675-6	P-6	Total/NA	Water	SM 2540C	
480-151675-7	P-7	Total/NA	Water	SM 2540C	
MB 480-467863/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-467863/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-151675-7 DU	P-7	Total/NA	Water	SM 2540C	

Analysis Batch: 467919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	300.0	
MB 480-467919/4	Method Blank	Total/NA	Water	300.0	
LCS 480-467919/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 467934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-8	DUPLICATE	Total/NA	Water	SM 2540C	
480-151675-9	FIELD BLANK	Total/NA	Water	SM 2540C	
480-151675-10	EQUIP BLANK	Total/NA	Water	SM 2540C	
MB 480-467934/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-467934/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 469109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-1	P-1	Total/NA	Water	SM 4500 H+ B	
480-151675-2	P-2	Total/NA	Water	SM 4500 H+ B	
480-151675-3	P-3	Total/NA	Water	SM 4500 H+ B	
480-151675-5	P-5	Total/NA	Water	SM 4500 H+ B	
480-151675-6	P-6	Total/NA	Water	SM 4500 H+ B	
480-151675-7	P-7	Total/NA	Water	SM 4500 H+ B	
480-151675-8	DUPLICATE	Total/NA	Water	SM 4500 H+ B	
480-151675-9	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-151675-10	EQUIP BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-469109/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 472393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-151675-4	P-4R	Total/NA	Water	SM 4500 H+ B	
LCS 480-472393/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-151675-4 DU	P-4R	Total/NA	Water	SM 4500 H+ B	

Lab Chronicle

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Client Sample ID: P-1

Lab Sample ID: 480-151675-1

Date Collected: 04/09/19 08:30
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:11	LMH	TAL BUF
Total/NA	Analysis	300.0		2	467623	04/12/19 14:12	EMD	TAL BUF
Total/NA	Analysis	300.0		2	467919	04/15/19 11:44	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:40	KEB	TAL BUF

Client Sample ID: P-2

Lab Sample ID: 480-151675-2

Date Collected: 04/09/19 14:25
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:25	LMH	TAL BUF
Total/NA	Analysis	300.0		2	467623	04/12/19 14:27	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:46	KEB	TAL BUF

Client Sample ID: P-3

Lab Sample ID: 480-151675-3

Date Collected: 04/09/19 09:20
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:29	LMH	TAL BUF
Total/NA	Analysis	300.0		1	467623	04/12/19 14:41	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:48	KEB	TAL BUF

Client Sample ID: P-4R

Lab Sample ID: 480-151675-4

Date Collected: 04/09/19 10:40
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:32	LMH	TAL BUF
Total/NA	Analysis	300.0		2	467623	04/12/19 14:56	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	472393	05/10/19 23:01	AEF	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: P-5
Lab Sample ID: 480-151675-5
Date Collected: 04/09/19 11:40
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:36	LMH	TAL BUF
Total/NA	Analysis	300.0		5	467623	04/12/19 15:11	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:51	KEB	TAL BUF

Client Sample ID: P-6
Lab Sample ID: 480-151675-6
Date Collected: 04/09/19 12:40
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:40	LMH	TAL BUF
Total/NA	Analysis	300.0		2	467623	04/12/19 15:25	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:54	KEB	TAL BUF

Client Sample ID: P-7
Lab Sample ID: 480-151675-7
Date Collected: 04/09/19 13:25
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:43	LMH	TAL BUF
Total/NA	Analysis	300.0		2	467623	04/12/19 16:53	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467863	04/15/19 01:38	MLS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:56	KEB	TAL BUF

Client Sample ID: DUPLICATE
Lab Sample ID: 480-151675-8
Date Collected: 04/09/19 00:00
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:47	LMH	TAL BUF
Total/NA	Analysis	300.0		1	467623	04/12/19 17:07	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467934	04/15/19 09:54	RAF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 09:59	KEB	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-151675-9

Date Collected: 04/09/19 14:30
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:50	LMH	TAL BUF
Total/NA	Analysis	300.0		1	467623	04/12/19 17:22	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467934	04/15/19 09:54	RAF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 10:01	KEB	TAL BUF

Client Sample ID: EQUIP BLANK
Lab Sample ID: 480-151675-10

Date Collected: 04/09/19 14:35
Matrix: Water
Date Received: 04/10/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			467423	04/12/19 08:54	KMP	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	467924	04/13/19 15:54	LMH	TAL BUF
Total/NA	Analysis	300.0		1	467623	04/12/19 17:36	EMD	TAL BUF
Total/NA	Analysis	SM 2540C		1	467934	04/15/19 09:54	RAF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	469109	04/22/19 10:04	KEB	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 480-151675-1
Project/Site: SKB Cloquet - CCR Groundwater

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	036-999-337	12-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Method Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
200.7	Preparation, Total Metals	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-151675-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-151675-1	P-1	Water	04/09/19 08:30	04/10/19 09:15
480-151675-2	P-2	Water	04/09/19 14:25	04/10/19 09:15
480-151675-3	P-3	Water	04/09/19 09:20	04/10/19 09:15
480-151675-4	P-4R	Water	04/09/19 10:40	04/10/19 09:15
480-151675-5	P-5	Water	04/09/19 11:40	04/10/19 09:15
480-151675-6	P-6	Water	04/09/19 12:40	04/10/19 09:15
480-151675-7	P-7	Water	04/09/19 13:25	04/10/19 09:15
480-151675-8	DUPLICATE	Water	04/09/19 00:00	04/10/19 09:15
480-151675-9	FIELD BLANK	Water	04/09/19 14:30	04/10/19 09:15
480-151675-10	EQUIP BLANK	Water	04/09/19 14:35	04/10/19 09:15

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica Duluth SC
269

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: M. Schlagel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-126545-25622.1
Client Contact: Nathaniel Beinemann	Phone: 651-792-6065	E-Mail: ryan.vandette@testamericainc.com		Page: Page 1 of 1
Company: Waste Connections, Inc.				Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			
City: Rosemount	TAT Requested (days): Standard TAT			
State, Zip: MN, 55068				
Phone:	PO #: Purchase Order Requested			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Cloquet/ Event Desc: CCR Groundwater	Project #: 48013722			
Site: Minnesota	SSOW#:			

480-151675 Chain of Custody

Analysis Requested

H - Ascorbic Acid ... drate
I - Ice
J - DI Water
K - EDTA
L - EDA
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D - Cl/F/SO4	2540C_Calcd - Total Dissolved Solids	SM4500_H+ - pH	200.7 - B,Ca	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	D		
P-1	4/4/19	8:30	G	Water			X	X	X	X		
P-2		14:25		Water			X	X	X	X		
P-3		9:20		Water			X	X	X	X		
P-4R		10:40		Water			X	X	X	X		
P-5		11:40		Water			X	X	X	X		
P-6		12:40		Water			X	X	X	X		
P-7		13:25		Water			X	X	X	X		
Duplicate		—		Water			X	X	X	X		
Field Blank		14:30		Water			X	X	X	X		
Equip Blank		14:35		Water			X	X	X	X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/9/19 1500	ES	[signature]	4/9/19 1500	TA Duluth
2	[signature]	4/19/19 1530		[signature]	04/10/19 0915	TA
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2 lb #1 ICE

TestAmerica Duluth SC
269

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-151675-1

Login Number: 151675

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Wallace, Cameron

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-161676-1
Client Project/Site: SKB Cloquet - CCR Groundwater
Sampling Event: CCR Groundwater

For:
Waste Connections, Inc.
13425 Courthouse Blvd
Rosemount, Minnesota 55068

Attn: Nathaniel Beinemann

Authorized for release by:
11/21/2019 12:05:29 PM
Wyatt Watson, Project Management Assistant I
wyatt.watson@testamericainc.com

Designee for

Ryan VanDette, Project Manager II
(716)504-9830
ryan.vandette@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
F4	MS/MSD RPD exceeds control limits due to sample size difference.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Job ID: 480-161676-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-161676-1

Comments
No additional comments.

Receipt
The samples were received on 10/26/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.3º C and 3.4º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2540C: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: P-2 (480-161676-2). The reporting limits (RLs) have been adjusted proportionately.

Method SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: P-1 (480-161676-1), P-2 (480-161676-2), P-3 (480-161676-3), P-4R (480-161676-4), P-5 (480-161676-5), P-6 (480-161676-6), P-7 (480-161676-7), DUPLICATE (480-161676-8), FIELD BLANK (480-161676-9) and EQUIP BLANK (480-161676-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-1 — Lab Sample ID: 480-161676-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.067		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	160		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Total Dissolved Solids	490		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	87.5		2.5		mg/L	5		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-2 — Lab Sample ID: 480-161676-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.060		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	185		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Total Dissolved Solids	598		20.0		mg/L	1		SM 2540C	Total/NA
Chloride	287		5.0		mg/L	10		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-3 — Lab Sample ID: 480-161676-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.041		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	98.7		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	53.0		25.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	237		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	34.1		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-4R — Lab Sample ID: 480-161676-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.31		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	155		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	139		25.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	542		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	114		2.5		mg/L	5		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-5 — Lab Sample ID: 480-161676-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.044		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	177		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	56.1		25.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	773		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	232		2.5		mg/L	5		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	6.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Client Sample ID: P-5 (Continued)

Lab Sample ID: 480-161676-5

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Temperature	18.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-6

Lab Sample ID: 480-161676-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.28		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	154		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	151		25.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	589		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	122		1.5		mg/L	3		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-7

Lab Sample ID: 480-161676-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.10		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	131		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	25.5		5.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	398		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	70.2		1.5		mg/L	3		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUPLICATE

Lab Sample ID: 480-161676-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.041		0.020		mg/L	1		200.7 Rev 4.4	Total/NA
Calcium	100		0.50		mg/L	1		200.7 Rev 4.4	Total/NA
Sulfate	53.1	F1	10.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	201		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	33.9		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: FIELD BLANK

Lab Sample ID: 480-161676-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	5.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: EQUIP BLANK

Lab Sample ID: 480-161676-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	4.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-1

Date Collected: 10/25/19 09:15
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-1

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.067**		0.020		mg/L		10/30/19 07:58	11/01/19 12:06	1
Calcium	**160**		0.50		mg/L		10/30/19 07:58	11/01/19 12:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/19/19 23:56	1
Total Dissolved Solids	**490**		10.0		mg/L			11/01/19 11:37	1
Chloride	**87.5**		2.5		mg/L			11/15/19 16:42	5
Fluoride	**0.050**		0.050		mg/L			11/06/19 19:07	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.8**	**HF**	0.1		SU			11/06/19 16:31	1
Temperature	**18.8**	**HF**	0.001		Degrees C			11/06/19 16:31	1

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-2

Date Collected: 10/25/19 00:00
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-2

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.060**		0.020		mg/L		10/30/19 07:58	11/01/19 12:36	1
Calcium	**185**		0.50		mg/L		10/30/19 07:58	11/01/19 12:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND	F1 F2	5.0		mg/L			11/15/19 19:24	1
Total Dissolved Solids	**598**		20.0		mg/L			11/01/19 11:37	1
Chloride	**287**		5.0		mg/L			11/15/19 17:57	10
Fluoride	**0.050**		0.050		mg/L			11/14/19 01:13	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.8**	**HF**	0.1		SU			11/06/19 16:34	1
Temperature	**18.4**	**HF**	0.001		Degrees C			11/06/19 16:34	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-3

Date Collected: 10/25/19 10:05
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-3

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.041		0.020		mg/L		10/30/19 07:58	11/01/19 12:47	1
Calcium	98.7		0.50		mg/L		10/30/19 07:58	11/01/19 12:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	53.0		25.0		mg/L			11/15/19 18:13	5
Total Dissolved Solids	237		10.0		mg/L			11/01/19 11:37	1
Chloride	34.1		0.50		mg/L			11/15/19 16:38	1
Fluoride	0.080		0.050		mg/L			11/14/19 01:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			11/06/19 16:40	1
Temperature	18.0	HF	0.001		Degrees C			11/06/19 16:40	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-4R

Date Collected: 10/25/19 11:20
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-4

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.31		0.020		mg/L		10/30/19 07:58	11/01/19 12:51	1
Calcium	155		0.50		mg/L		10/30/19 07:58	11/01/19 12:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	139		25.0		mg/L			11/20/19 00:45	5
Total Dissolved Solids	542		10.0		mg/L			11/01/19 11:37	1
Chloride	114		2.5		mg/L			11/15/19 16:52	5
Fluoride	0.080		0.050		mg/L			11/14/19 01:31	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			11/06/19 16:43	1
Temperature	18.1	HF	0.001		Degrees C			11/06/19 16:43	1

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-5

Date Collected: 10/25/19 12:20
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-5

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.044		0.020		mg/L		10/30/19 07:58	11/01/19 12:55	1
Calcium	177		0.50		mg/L		10/30/19 07:58	11/01/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	56.1		25.0		mg/L			11/17/19 09:52	5
Total Dissolved Solids	773		10.0		mg/L			11/01/19 11:37	1
Chloride	232		2.5		mg/L			11/15/19 16:43	5
Fluoride	0.050		0.050		mg/L			11/14/19 01:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1		SU			11/06/19 16:46	1
Temperature	18.1	HF	0.001		Degrees C			11/06/19 16:46	1

Client Sample ID: P-6
Lab Sample ID: 480-161676-6

Date Collected: 10/25/19 13:40
Matrix: Water
Date Received: 10/26/19 09:45

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.28		0.020		mg/L		10/30/19 07:58	11/01/19 12:59	1
Calcium	154		0.50		mg/L		10/30/19 07:58	11/01/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	151		25.0		mg/L			11/15/19 20:14	5
Total Dissolved Solids	589		10.0		mg/L			11/01/19 11:37	1
Chloride	122		1.5		mg/L			11/15/19 16:44	3
Fluoride	0.050		0.050		mg/L			11/14/19 01:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1		SU			11/06/19 16:49	1
Temperature	18.2	HF	0.001		Degrees C			11/06/19 16:49	1

Client Sample ID: P-7
Lab Sample ID: 480-161676-7

Date Collected: 10/25/19 14:25
Matrix: Water
Date Received: 10/26/19 09:45

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.10		0.020		mg/L		10/30/19 07:58	11/01/19 13:03	1
Calcium	131		0.50		mg/L		10/30/19 07:58	11/01/19 13:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	25.5		5.0		mg/L			11/20/19 08:17	1
Total Dissolved Solids	398		10.0		mg/L			11/01/19 11:21	1
Chloride	70.2		1.5		mg/L			11/19/19 21:21	3
Fluoride	0.090		0.050		mg/L			11/14/19 01:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1		SU			11/06/19 16:52	1
Temperature	18.5	HF	0.001		Degrees C			11/06/19 16:52	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: DUPLICATE

Date Collected: 10/25/19 00:00
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-8

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.041		0.020		mg/L		10/30/19 07:58	11/01/19 13:07	1
Calcium	100		0.50		mg/L		10/30/19 07:58	11/01/19 13:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	53.1	F1	10.0		mg/L			11/20/19 00:43	2
Total Dissolved Solids	201		10.0		mg/L			11/01/19 11:21	1
Chloride	33.9		0.50		mg/L			11/19/19 21:16	1
Fluoride	0.080		0.050		mg/L			11/14/19 01:43	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			11/06/19 16:54	1
Temperature	18.3	HF	0.001		Degrees C			11/06/19 16:54	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: FIELD BLANK

Date Collected: 10/25/19 15:15
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-9

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		10/30/19 07:58	11/01/19 13:22	1
Calcium	ND		0.50		mg/L		10/30/19 07:58	11/01/19 13:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND	F1	5.0		mg/L			11/19/19 23:31	1
Total Dissolved Solids	ND		10.0		mg/L			11/01/19 11:21	1
Chloride	ND		0.50		mg/L			11/19/19 21:17	1
Fluoride	**0.090**		0.050		mg/L			11/14/19 01:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.5**	**HF**	0.1		SU			11/06/19 16:57	1
Temperature	**18.3**	**HF**	0.001		Degrees C			11/06/19 16:57	1

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: EQUIP BLANK

Date Collected: 10/25/19 15:20
Date Received: 10/26/19 09:45

Lab Sample ID: 480-161676-10

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		10/30/19 07:58	11/01/19 13:26	1
Calcium	ND		0.50		mg/L		10/30/19 07:58	11/01/19 13:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/19/19 23:56	1
Total Dissolved Solids	ND		10.0		mg/L			11/01/19 11:21	1
Chloride	ND		0.50		mg/L			11/19/19 21:17	1
Fluoride	ND		0.050		mg/L			11/14/19 01:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**4.9**	**HF**	0.1		SU			11/06/19 17:00	1
Temperature	**18.2**	**HF**	0.001		Degrees C			11/06/19 17:00	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-501036/1-A
Matrix: Water
Analysis Batch: 501877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 501036

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.020		mg/L		10/30/19 07:58	11/01/19 11:59	1
Calcium	ND		0.50		mg/L		10/30/19 07:58	11/01/19 11:59	1

Lab Sample ID: LCS 480-501036/2-A
Matrix: Water
Analysis Batch: 501877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 501036

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.200	0.199		mg/L		100	85 - 115
Calcium	10.0	10.03		mg/L		100	85 - 115

Lab Sample ID: 480-161676-1 MS
Matrix: Water
Analysis Batch: 501877

Client Sample ID: P-1
Prep Type: Total/NA
Prep Batch: 501036

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.067		0.200	0.276		mg/L		105	70 - 130
Calcium	160		10.0	163.3	4	mg/L		35	70 - 130

Lab Sample ID: 480-161676-1 MSD
Matrix: Water
Analysis Batch: 501877

Client Sample ID: P-1
Prep Type: Total/NA
Prep Batch: 501036

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.067		0.200	0.269		mg/L		101	70 - 130	3	20
Calcium	160		10.0	161.8	4	mg/L		20	70 - 130	1	20

Lab Sample ID: 480-161676-2 MS
Matrix: Water
Analysis Batch: 501877

Client Sample ID: P-2
Prep Type: Total/NA
Prep Batch: 501036

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.060		0.200	0.280		mg/L		110	70 - 130
Calcium	185		10.0	194.6	4	mg/L		98	70 - 130

Lab Sample ID: 480-161676-2 MSD
Matrix: Water
Analysis Batch: 501877

Client Sample ID: P-2
Prep Type: Total/NA
Prep Batch: 501036

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.060		0.200	0.279		mg/L		110	70 - 130	0	20
Calcium	185		10.0	197.3	4	mg/L		125	70 - 130	1	20

Method: D516-90, 02 - Sulfate

Lab Sample ID: MB 480-504985/103
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/15/19 19:14	1

Lab Sample ID: MB 480-504985/129
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/15/19 20:04	1

Lab Sample ID: MB 480-504985/162
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/17/19 09:50	1

Lab Sample ID: MB 480-504985/180
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/17/19 10:16	1

Lab Sample ID: MB 480-504985/70
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/15/19 18:11	1

Lab Sample ID: LCS 480-504985/102
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.89		mg/L		100	90 - 110

Lab Sample ID: LCS 480-504985/128
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.93		mg/L		100	90 - 110

Lab Sample ID: LCS 480-504985/161
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	32.70		mg/L		109	90 - 110

Method: D516-90, 02 - Sulfate

Lab Sample ID: LCS 480-504985/179
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	31.92		mg/L		106	90 - 110

Lab Sample ID: LCS 480-504985/69
Matrix: Water
Analysis Batch: 504985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.63		mg/L		102	90 - 110

Lab Sample ID: 480-161676-2 MS
Matrix: Water
Analysis Batch: 504985

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	ND	F1 F2	40.0	ND	F1	mg/L		20	60 - 128

Lab Sample ID: 480-161676-2 MSD
Matrix: Water
Analysis Batch: 504985

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND	F1 F2	60.0	101.6	F1 F4	mg/L		169	60 - 128	170	20

Lab Sample ID: 480-161676-2 MSD
Matrix: Water
Analysis Batch: 504985

Client Sample ID: P-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND		40.0	71.74		mg/L					

Lab Sample ID: MB 480-505599/108
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/19/19 21:54	1

Lab Sample ID: MB 480-505599/141
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/19/19 23:37	1

Lab Sample ID: MB 480-505599/205
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0		mg/L			11/20/19 00:38	1

Method: D516-90, 02 - Sulfate

Lab Sample ID: LCS 480-505599/107
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.29		mg/L		101	90 - 110

Lab Sample ID: LCS 480-505599/140
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.72		mg/L		99	90 - 110

Lab Sample ID: LCS 480-505599/204
Matrix: Water
Analysis Batch: 505599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.27		mg/L		98	90 - 110

Lab Sample ID: 480-161676-8 MS
Matrix: Water
Analysis Batch: 505599

Client Sample ID: DUPLICATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	53.1	F1	20.0	78.19		mg/L		126	60 - 128

Lab Sample ID: 480-161676-8 MSD
Matrix: Water
Analysis Batch: 505599

Client Sample ID: DUPLICATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	53.1	F1	20.0	78.99	F1	mg/L		130	60 - 128	1	20

Lab Sample ID: 480-161676-9 MS
Matrix: Water
Analysis Batch: 505599

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	ND	F1	20.0	18.74		mg/L		94	60 - 128

Lab Sample ID: 480-161676-9 MSD
Matrix: Water
Analysis Batch: 505599

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND	F1	20.0	18.93		mg/L		95	60 - 128	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-501710/1
Matrix: Water
Analysis Batch: 501710

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			11/01/19 11:21	1

Lab Sample ID: LCS 480-501710/2
Matrix: Water
Analysis Batch: 501710

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	507.0		mg/L		101	85 - 115

Lab Sample ID: 480-161676-7 DU
Matrix: Water
Analysis Batch: 501710

Client Sample ID: P-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	398		413.0		mg/L		4	10

Lab Sample ID: MB 480-501713/1
Matrix: Water
Analysis Batch: 501713

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			11/01/19 11:37	1

Lab Sample ID: LCS 480-501713/2
Matrix: Water
Analysis Batch: 501713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	485.0		mg/L		97	85 - 115

Lab Sample ID: 480-161676-6 DU
Matrix: Water
Analysis Batch: 501713

Client Sample ID: P-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	589		587.0		mg/L		0.3	10

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 480-504839/102
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/15/19 16:37	1

Method: SM 4500 Cl- E - Chloride, Total (Continued)

Lab Sample ID: MB 480-504839/108
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/15/19 16:41	1

Lab Sample ID: MB 480-504839/120
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/15/19 16:46	1

Lab Sample ID: MB 480-504839/152
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/15/19 17:55	1

Lab Sample ID: MB 480-504839/72
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/15/19 16:24	1

Lab Sample ID: LCS 480-504839/101
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.57		mg/L		106	90 - 110

Lab Sample ID: LCS 480-504839/107
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.81		mg/L		107	90 - 110

Lab Sample ID: LCS 480-504839/119
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.06		mg/L		108	90 - 110

Lab Sample ID: LCS 480-504839/151
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.80		mg/L		107	90 - 110

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: LCS 480-504839/71
Matrix: Water
Analysis Batch: 504839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.85		mg/L		107	90 - 110

Lab Sample ID: MB 480-505533/129
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/19/19 21:10	1

Lab Sample ID: MB 480-505533/141
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/19/19 21:15	1

Lab Sample ID: MB 480-505533/151
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			11/19/19 21:18	1

Lab Sample ID: LCS 480-505533/128
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.42		mg/L		110	90 - 110

Lab Sample ID: LCS 480-505533/140
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.34		mg/L		109	90 - 110

Lab Sample ID: LCS 480-505533/150
Matrix: Water
Analysis Batch: 505533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.39		mg/L		110	90 - 110

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 480-502795/51
Matrix: Water
Analysis Batch: 502795

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			11/06/19 18:57	1

Lab Sample ID: LCS 480-502795/52
Matrix: Water
Analysis Batch: 502795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.03		mg/L		103	90 - 110

Lab Sample ID: 480-161676-1 MS
Matrix: Water
Analysis Batch: 502795

Client Sample ID: P-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.050		1.00	1.05		mg/L		100	86 - 111

Lab Sample ID: 480-161676-1 MSD
Matrix: Water
Analysis Batch: 502795

Client Sample ID: P-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.050		1.00	1.02		mg/L		97	86 - 111	3	20

Lab Sample ID: MB 480-504418/3
Matrix: Water
Analysis Batch: 504418

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			11/14/19 00:29	1

Lab Sample ID: LCS 480-504418/4
Matrix: Water
Analysis Batch: 504418

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.02		mg/L		102	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-502785/23
Matrix: Water
Analysis Batch: 502785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		101	99 - 101

QC Association Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Metals

Prep Batch: 501036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	200.7	
480-161676-2	P-2	Total/NA	Water	200.7	
480-161676-3	P-3	Total/NA	Water	200.7	
480-161676-4	P-4R	Total/NA	Water	200.7	
480-161676-5	P-5	Total/NA	Water	200.7	
480-161676-6	P-6	Total/NA	Water	200.7	
480-161676-7	P-7	Total/NA	Water	200.7	
480-161676-8	DUPLICATE	Total/NA	Water	200.7	
480-161676-9	FIELD BLANK	Total/NA	Water	200.7	
480-161676-10	EQUIP BLANK	Total/NA	Water	200.7	
MB 480-501036/1-A	Method Blank	Total/NA	Water	200.7	
LCS 480-501036/2-A	Lab Control Sample	Total/NA	Water	200.7	
480-161676-1 MS	P-1	Total/NA	Water	200.7	
480-161676-1 MSD	P-1	Total/NA	Water	200.7	
480-161676-2 MS	P-2	Total/NA	Water	200.7	
480-161676-2 MSD	P-2	Total/NA	Water	200.7	

Analysis Batch: 501877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-2	P-2	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-3	P-3	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-4	P-4R	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-5	P-5	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-6	P-6	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-7	P-7	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-8	DUPLICATE	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-9	FIELD BLANK	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-10	EQUIP BLANK	Total/NA	Water	200.7 Rev 4.4	501036
MB 480-501036/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	501036
LCS 480-501036/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-1 MS	P-1	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-1 MSD	P-1	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-2 MS	P-2	Total/NA	Water	200.7 Rev 4.4	501036
480-161676-2 MSD	P-2	Total/NA	Water	200.7 Rev 4.4	501036

General Chemistry

Analysis Batch: 501710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-7	P-7	Total/NA	Water	SM 2540C	
480-161676-8	DUPLICATE	Total/NA	Water	SM 2540C	
480-161676-9	FIELD BLANK	Total/NA	Water	SM 2540C	
480-161676-10	EQUIP BLANK	Total/NA	Water	SM 2540C	
MB 480-501710/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-501710/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-161676-7 DU	P-7	Total/NA	Water	SM 2540C	

Analysis Batch: 501713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 501713 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-2	P-2	Total/NA	Water	SM 2540C	
480-161676-3	P-3	Total/NA	Water	SM 2540C	
480-161676-4	P-4R	Total/NA	Water	SM 2540C	
480-161676-5	P-5	Total/NA	Water	SM 2540C	
480-161676-6	P-6	Total/NA	Water	SM 2540C	
MB 480-501713/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-501713/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-161676-6 DU	P-6	Total/NA	Water	SM 2540C	

Analysis Batch: 502785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	SM 4500 H+ B	
480-161676-2	P-2	Total/NA	Water	SM 4500 H+ B	
480-161676-3	P-3	Total/NA	Water	SM 4500 H+ B	
480-161676-4	P-4R	Total/NA	Water	SM 4500 H+ B	
480-161676-5	P-5	Total/NA	Water	SM 4500 H+ B	
480-161676-6	P-6	Total/NA	Water	SM 4500 H+ B	
480-161676-7	P-7	Total/NA	Water	SM 4500 H+ B	
480-161676-8	DUPLICATE	Total/NA	Water	SM 4500 H+ B	
480-161676-9	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-161676-10	EQUIP BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-502785/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 502795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	SM 4500 F C	
MB 480-502795/51	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 480-502795/52	Lab Control Sample	Total/NA	Water	SM 4500 F C	
480-161676-1 MS	P-1	Total/NA	Water	SM 4500 F C	
480-161676-1 MSD	P-1	Total/NA	Water	SM 4500 F C	

Analysis Batch: 504418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-2	P-2	Total/NA	Water	SM 4500 F C	
480-161676-3	P-3	Total/NA	Water	SM 4500 F C	
480-161676-4	P-4R	Total/NA	Water	SM 4500 F C	
480-161676-5	P-5	Total/NA	Water	SM 4500 F C	
480-161676-6	P-6	Total/NA	Water	SM 4500 F C	
480-161676-7	P-7	Total/NA	Water	SM 4500 F C	
480-161676-8	DUPLICATE	Total/NA	Water	SM 4500 F C	
480-161676-9	FIELD BLANK	Total/NA	Water	SM 4500 F C	
480-161676-10	EQUIP BLANK	Total/NA	Water	SM 4500 F C	
MB 480-504418/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 480-504418/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	

Analysis Batch: 504839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	SM 4500 Cl- E	
480-161676-2	P-2	Total/NA	Water	SM 4500 Cl- E	
480-161676-3	P-3	Total/NA	Water	SM 4500 Cl- E	
480-161676-4	P-4R	Total/NA	Water	SM 4500 Cl- E	

General Chemistry (Continued)

Analysis Batch: 504839 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-5	P-5	Total/NA	Water	SM 4500 Cl- E	
480-161676-6	P-6	Total/NA	Water	SM 4500 Cl- E	
MB 480-504839/102	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-504839/108	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-504839/120	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-504839/152	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-504839/72	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 480-504839/101	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-504839/107	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-504839/119	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-504839/151	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-504839/71	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 504985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-2	P-2	Total/NA	Water	D516-90, 02	
480-161676-3	P-3	Total/NA	Water	D516-90, 02	
480-161676-5	P-5	Total/NA	Water	D516-90, 02	
480-161676-6	P-6	Total/NA	Water	D516-90, 02	
MB 480-504985/103	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-504985/129	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-504985/162	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-504985/180	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-504985/70	Method Blank	Total/NA	Water	D516-90, 02	
LCS 480-504985/102	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-504985/128	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-504985/161	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-504985/179	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-504985/69	Lab Control Sample	Total/NA	Water	D516-90, 02	
480-161676-2 MS	P-2	Total/NA	Water	D516-90, 02	
480-161676-2 MSD	P-2	Total/NA	Water	D516-90, 02	
480-161676-2 MSD	P-2	Total/NA	Water	D516-90, 02	

Analysis Batch: 505533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-7	P-7	Total/NA	Water	SM 4500 Cl- E	
480-161676-8	DUPLICATE	Total/NA	Water	SM 4500 Cl- E	
480-161676-9	FIELD BLANK	Total/NA	Water	SM 4500 Cl- E	
480-161676-10	EQUIP BLANK	Total/NA	Water	SM 4500 Cl- E	
MB 480-505533/129	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-505533/141	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-505533/151	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 480-505533/128	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-505533/140	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-505533/150	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 505599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-1	P-1	Total/NA	Water	D516-90, 02	
480-161676-4	P-4R	Total/NA	Water	D516-90, 02	
480-161676-7	P-7	Total/NA	Water	D516-90, 02	

General Chemistry (Continued)

Analysis Batch: 505599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161676-8	DUPLICATE	Total/NA	Water	D516-90, 02	
480-161676-9	FIELD BLANK	Total/NA	Water	D516-90, 02	
480-161676-10	EQUIP BLANK	Total/NA	Water	D516-90, 02	
MB 480-505599/108	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-505599/141	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-505599/205	Method Blank	Total/NA	Water	D516-90, 02	
LCS 480-505599/107	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-505599/140	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-505599/204	Lab Control Sample	Total/NA	Water	D516-90, 02	
480-161676-8 MS	DUPLICATE	Total/NA	Water	D516-90, 02	
480-161676-8 MSD	DUPLICATE	Total/NA	Water	D516-90, 02	
480-161676-9 MS	FIELD BLANK	Total/NA	Water	D516-90, 02	
480-161676-9 MSD	FIELD BLANK	Total/NA	Water	D516-90, 02	

Lab Chronicle

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Client Sample ID: P-1

Lab Sample ID: 480-161676-1
Matrix: Water
Date Collected: 10/25/19 09:15
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:06	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		1	505599	11/19/19 23:56	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		5	504839	11/15/19 16:42	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	502795	11/06/19 19:07	AEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:31	AEF	TAL BUF

Client Sample ID: P-2

Lab Sample ID: 480-161676-2
Matrix: Water
Date Collected: 10/25/19 00:00
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:36	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		1	504985	11/15/19 19:24	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		10	504839	11/15/19 17:57	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:13	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:34	AEF	TAL BUF

Client Sample ID: P-3

Lab Sample ID: 480-161676-3
Matrix: Water
Date Collected: 10/25/19 10:05
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:47	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		5	504985	11/15/19 18:13	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	504839	11/15/19 16:38	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:28	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:40	AEF	TAL BUF

Client Sample ID: P-4R

Lab Sample ID: 480-161676-4
Matrix: Water
Date Collected: 10/25/19 11:20
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:51	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		5	505599	11/20/19 00:45	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-161676-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: P-4R
Lab Sample ID: 480-161676-4
Date Collected: 10/25/19 11:20
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		5	504839	11/15/19 16:52	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:31	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:43	AEF	TAL BUF

Client Sample ID: P-5
Lab Sample ID: 480-161676-5
Date Collected: 10/25/19 12:20
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:55	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		5	504985	11/17/19 09:52	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		5	504839	11/15/19 16:43	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:34	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:46	AEF	TAL BUF

Client Sample ID: P-6
Lab Sample ID: 480-161676-6
Date Collected: 10/25/19 13:40
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 12:59	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		5	504985	11/15/19 20:14	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501713	11/01/19 11:37	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		3	504839	11/15/19 16:44	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:37	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:49	AEF	TAL BUF

Client Sample ID: P-7
Lab Sample ID: 480-161676-7
Date Collected: 10/25/19 14:25
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 13:03	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		1	505599	11/20/19 08:17	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501710	11/01/19 11:21	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		3	505533	11/19/19 21:21	KEB	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:40	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:52	AEF	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-161676-1
Project/Site: SKB Cloquet - CCR Groundwater

Client Sample ID: DUPLICATE
Lab Sample ID: 480-161676-8
Date Collected: 10/25/19 00:00
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 13:07	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		2	505599	11/20/19 00:43	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501710	11/01/19 11:21	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	505533	11/19/19 21:16	KEB	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:43	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:54	AEF	TAL BUF

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-161676-9
Date Collected: 10/25/19 15:15
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 13:22	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		1	505599	11/19/19 23:31	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501710	11/01/19 11:21	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	505533	11/19/19 21:17	KEB	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:47	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 16:57	AEF	TAL BUF

Client Sample ID: EQUIP BLANK
Lab Sample ID: 480-161676-10
Date Collected: 10/25/19 15:20
Matrix: Water
Date Received: 10/26/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			501036	10/30/19 07:58	JLC	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	501877	11/01/19 13:26	AMH	TAL BUF
Total/NA	Analysis	D516-90, 02		1	505599	11/19/19 23:56	KEB	TAL BUF
Total/NA	Analysis	SM 2540C		1	501710	11/01/19 11:21	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	505533	11/19/19 21:17	KEB	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	504418	11/14/19 01:50	DSC	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	502785	11/06/19 17:00	AEF	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 480-161676-1
Project/Site: SKB Cloquet - CCR Groundwater

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	036-999-337	12-31-19 *

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
D516-90, 02	Sulfate	ASTM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 Cl- E	Chloride, Total	SM	TAL BUF
SM 4500 F C	Fluoride	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
200.7	Preparation, Total Metals	EPA	TAL BUF

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Waste Connections, Inc.
Project/Site: SKB Cloquet - CCR Groundwater

Job ID: 480-161676-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-161676-1	P-1	Water	10/25/19 09:15	10/26/19 09:45	
480-161676-2	P-2	Water	10/25/19 00:00	10/26/19 09:45	
480-161676-3	P-3	Water	10/25/19 10:05	10/26/19 09:45	
480-161676-4	P-4R	Water	10/25/19 11:20	10/26/19 09:45	
480-161676-5	P-5	Water	10/25/19 12:20	10/26/19 09:45	
480-161676-6	P-6	Water	10/25/19 13:40	10/26/19 09:45	
480-161676-7	P-7	Water	10/25/19 14:25	10/26/19 09:45	
480-161676-8	DUPLICATE	Water	10/25/19 00:00	10/26/19 09:45	
480-161676-9	FIELD BLANK	Water	10/25/19 15:15	10/26/19 09:45	
480-161676-10	EQUIP BLANK	Water	10/25/19 15:20	10/26/19 09:45	

Quantitation Limit Exceptions Summary

Client: Waste Connections, Inc. Job ID: 480-161676-1
Project/Site: SKB Cloquet - CCR Groundwater

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 4500 Cl- E	Chloride	Water	Total/NA	mg/L	0.50	1.0
SM 4500 F C	Fluoride	Water	Total/NA	mg/L	0.050	0.1

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

TestAmerica Duluth SC 269

eurofins | Environment Testing TestAmerica

Client Information	Sampler: N. Schlagel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-137218-25622.1
Client Contact: Nathaniel Beinemann	Phone: 651-792-6065	E-Mail: ryan.vandette@testamericainc.com		Page: Page 1 of 1
Company: Waste Connections, Inc.				Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			
City: Rosemount	TAT Requested (days): Standard			
State, Zip: MN, 55068				
Phone:	PO #: Purchase Order Requested 3078-19-00028 OCT			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Cloquet/ Event Desc: CCR Groundwater	Project #: 48013722			
Site: Minnesota	SSOW#:			

Analysis Requested

480-161676 Chain of Custody

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D - Cl/F/SO4	2540C_Calcd - Total Dissolved Solids	SM4500_H+ - pH	200.7 - B,Ca	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	D		
P-1	10/25/19	9:15	G	Water			X	X	X	X		
P-2				Water								
P-3		10:05		Water								
P-4 R		11:20		Water								
P-5		12:20		Water								
P-6		13:40		Water								
P-7		14:25		Water								
Duplicate		-		Water								
Field Blank		15:15		Water								
Equip Blank		15:20		Water								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/25/19 15:30	GES	[signature]	10/25/19 1530	Eurofins
2	[signature]	10/25/19 1630	Company	[signature]	10/26/19 945	Company
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3 3.4 #1

TestAmerica Duluth SC 269

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-161676-1
SDG Number:

Login Number: 161676
List Number: 1
Creator: Manhardt, Kara M

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GES
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix C – Statistical Evaluation Data

1				Nonparametric Background Statistics for Uncensored Full Data Sets								
2			User Selected Options									
3			Date/Time of Computation	ProUCL 5.11/27/2020 11:05:56 AM								
4			From File	2019 basic ProUCL list_Shamrock.xls								
5			Full Precision	OFF								
6			Confidence Coefficient	95%								
7			Coverage	95%								
8			Number of Bootstrap Operations	2000								
9												
10	Boron											
11												
12	General Statistics											
13					Total Number of Observations	114			Number of Distinct Observations	55		
14									Number of Missing Observations	1		
15					Minimum	0.02			First Quartile	0.0413		
16					Second Largest	0.38			Median	0.0575		
17					Maximum	0.38			Third Quartile	0.12		
18					Mean	0.103			SD	0.0947		
19					Coefficient of Variation	0.922			Skewness	1.684		
20					Mean of logged Data	-2.597			SD of logged Data	0.763		
21												
22					Critical Values for Background Threshold Values (BTVs)							
23					Tolerance Factor K (For UTL)	1.904			d2max (for USL)	3.254		
24												
25					Nonparametric Distribution Free Background Statistics							
26					Data do not follow a Discernible Distribution (0.05)							
27												
28					Nonparametric Upper Limits for Background Threshold Values							
29					Order of Statistic, r	111			95% UTL with 95% Coverage	0.37		
30					Approx, f used to compute achieved CC	1.461			Approximate Actual Confidence Coefficient achieved by UTL	0.827		
31									Approximate Sample Size needed to achieve specified CC	153		
32					95% Percentile Bootstrap UTL with 95% Coverage	0.37			95% BCA Bootstrap UTL with 95% Coverage	0.37		
33					95% UPL	0.338			90% Percentile	0.28		
34					90% Chebyshev UPL	0.388			95% Percentile	0.317		
35					95% Chebyshev UPL	0.517			99% Percentile	0.379		
36					95% USL	0.38						
37												
38	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
39	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
40	and consists of observations collected from clean unimpacted locations.											
41	The use of USL tends to provide a balance between false positives and false negatives provided the data											
42	represents a background data set and when many onsite observations need to be compared with the BTV.											
43												

44	**Calcium**											
45												
46	**General Statistics**											
47					Total Number of Observations	111			Number of Distinct Observations	77		
48									Number of Missing Observations	3		
49					Minimum	27			First Quartile	118		
50					Second Largest	207			Median	145		
51					Maximum	235			Third Quartile	163		
52					Mean	138.1			SD	34.68		
53					Coefficient of Variation	0.251			Skewness	-0.644		
54					Mean of logged Data	4.886			SD of logged Data	0.321		
55												
56					**Critical Values for Background Threshold Values (BTVs)**							
57					Tolerance Factor K (For UTL)	1.908			d2max (for USL)	3.245		
58												
59					**Nonparametric Distribution Free Background Statistics**							
60					**Data do not follow a Discernible Distribution (0.05)**							
61												
62					**Nonparametric Upper Limits for Background Threshold Values**							
63					Order of Statistic, r	109			95% UTL with 95% Coverage	193		
64					Approx, f used to compute achieved CC	1.912			Approximate Actual Confidence Coefficient achieved by UTL	0.92		
65									Approximate Sample Size needed to achieve specified CC	124		
66					95% Percentile Bootstrap UTL with 95% Coverage	189			95% BCA Bootstrap UTL with 95% Coverage	189		
67					95% UPL	183.4			90% Percentile	172		
68					90% Chebyshev UPL	242.7			95% Percentile	182		
69					95% Chebyshev UPL	290			99% Percentile	205.6		
70					95% USL	235						
71												
72					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
73					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
74					and consists of observations collected from clean unimpacted locations.							
75					The use of USL tends to provide a balance between false positives and false negatives provided the data							
76					represents a background data set and when many onsite observations need to be compared with the BTV.							
77												

78	**chloride**											
79												
80	**General Statistics**											
81					Total Number of Observations	85			Number of Distinct Observations	79		
82									Number of Missing Observations	3		
83					Minimum	4			First Quartile	70.7		
84					Second Largest	287			Median	94.8		
85					Maximum	344			Third Quartile	137		
86					Mean	112.2			SD	65.11		
87					Coefficient of Variation	0.58			Skewness	1.076		
88					Mean of logged Data	4.529			SD of logged Data	0.702		
89												
90					**Critical Values for Background Threshold Values (BTVs)**							
91					Tolerance Factor K (For UTL)	1.95			d2max (for USL)	3.153		
92												
93					**Nonparametric Distribution Free Background Statistics**							
94					**Data appear Gamma Distributed at 5% Significance Level**							
95												
96					**Nonparametric Upper Limits for Background Threshold Values**							
97					Order of Statistic, r	83			95% UTL with 95% Coverage	242		
98					Approx, f used to compute achieved CC	1.456			Approximate Actual Confidence Coefficient achieved by UTL	0.804		
99									Approximate Sample Size needed to achieve specified CC	124		
100					95% Percentile Bootstrap UTL with 95% Coverage	242			95% BCA Bootstrap UTL with 95% Coverage	242		
101					95% UPL	232			90% Percentile	214.6		
102					90% Chebyshev UPL	308.7			95% Percentile	231.4		
103					95% Chebyshev UPL	397.7			99% Percentile	296.1		
104					95% USL	344						
105												
106					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
107					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
108					and consists of observations collected from clean unimpacted locations.							
109					The use of USL tends to provide a balance between false positives and false negatives provided the data							
110					represents a background data set and when many onsite observations need to be compared with the BTV.							
111												

112	**fluoride**											
113												
114	**General Statistics**											
115					Total Number of Observations	88			Number of Distinct Observations	9		
116					Minimum	0.05			First Quartile	0.25		
117					Second Largest	0.5			Median	0.25		
118					Maximum	0.5			Third Quartile	0.25		
119					Mean	0.276			SD	0.137		
120					Coefficient of Variation	0.495			Skewness	0.489		
121					Mean of logged Data	-1.434			SD of logged Data	0.595		
122												
123					**Critical Values for Background Threshold Values (BTVs)**							
124					Tolerance Factor K (For UTL)	1.944			d2max (for USL)	3.165		
125												
126					**Nonparametric Distribution Free Background Statistics**							
127					**Data do not follow a Discernible Distribution (0.05)**							
128												
129					**Nonparametric Upper Limits for Background Threshold Values**							
130					Order of Statistic, r	86			95% UTL with 95% Coverage	0.5		
131					Approx, f used to compute achieved CC	1.509			Approximate Actual Confidence Coefficient achieved by UTL	0.822		
132									Approximate Sample Size needed to achieve specified CC	124		
133					95% Percentile Bootstrap UTL with 95% Coverage	0.5			95% BCA Bootstrap UTL with 95% Coverage	0.5		
134					95% UPL	0.5			90% Percentile	0.5		
135					90% Chebyshev UPL	0.689			95% Percentile	0.5		
136					95% Chebyshev UPL	0.877			99% Percentile	0.5		
137					95% USL	0.5						
138												
139					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
140					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
141					and consists of observations collected from clean unimpacted locations.							
142					The use of USL tends to provide a balance between false positives and false negatives provided the data							
143					represents a background data set and when many onsite observations need to be compared with the BTV.							
144												

145	**ph**											
146												
147	**General Statistics**											
148					Total Number of Observations	152			Number of Distinct Observations	18		
149					Minimum	6.1			First Quartile	7		
150					Second Largest	8			Median	7.2		
151					Maximum	8.1			Third Quartile	7.4		
152					Mean	7.195			SD	0.341		
153					Coefficient of Variation	0.0474			Skewness	0.116		
154					Mean of logged Data	1.972			SD of logged Data	0.0474		
155												
156					**Critical Values for Background Threshold Values (BTVs)**							
157					Tolerance Factor K (For UTL)	1.866			d2max (for USL)	3.347		
158												
159					**Nonparametric Distribution Free Background Statistics**							
160					**Data appear Approximate Normal at 5% Significance Level**							
161												
162					**Nonparametric Upper Limits for Background Threshold Values**							
163					Order of Statistic, r	148			95% UTL with 95% Coverage	7.9		
164					Approx, f used to compute achieved CC	1.558			Approximate Actual Confidence Coefficient achieved by UTL	0.881		
165									Approximate Sample Size needed to achieve specified CC	181		
166					95% Percentile Bootstrap UTL with 95% Coverage	7.9			95% BCA Bootstrap UTL with 95% Coverage	7.9		
167					95% UPL	7.8			90% Percentile	7.6		
168					90% Chebyshev UPL	8.222			95% Percentile	7.8		
169					95% Chebyshev UPL	8.687			99% Percentile	7.949		
170					95% USL	8.1						
171												
172					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
173					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
174					and consists of observations collected from clean unimpacted locations.							
175					The use of USL tends to provide a balance between false positives and false negatives provided the data							
176					represents a background data set and when many onsite observations need to be compared with the BTV.							
177												

178	**sulfate**										
179											
180	**General Statistics**										
181				Total Number of Observations		106			Number of Distinct Observations		96
182				Minimum		5			First Quartile		34.93
183				Second Largest		160			Median		47.4
184				Maximum		161			Third Quartile		66.1
185				Mean		56.45			SD		36.36
186				Coefficient of Variation		0.644			Skewness		1.304
187				Mean of logged Data		3.831			SD of logged Data		0.674
188											
189				**Critical Values for Background Threshold Values (BTVs)**							
190				Tolerance Factor K (For UTL)		1.915			d2max (for USL)		3.229
191											
192				**Nonparametric Distribution Free Background Statistics**							
193				**Data do not follow a Discernible Distribution (0.05)**							
194											
195				**Nonparametric Upper Limits for Background Threshold Values**							
196				Order of Statistic, r		104			95% UTL with 95% Coverage		151
197				Approx, f used to compute achieved CC		1.825			Approximate Actual Confidence Coefficient achieved by UTL		0.904
198									Approximate Sample Size needed to achieve specified CC		124
199				95% Percentile Bootstrap UTL with 95% Coverage		150			95% BCA Bootstrap UTL with 95% Coverage		147
200				95% UPL		141.6			90% Percentile		114.5
201				90% Chebyshev UPL		166.1			95% Percentile		139
202				95% Chebyshev UPL		215.7			99% Percentile		159.6
203				95% USL		161					
204											
205				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
206				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
207				and consists of observations collected from clean unimpacted locations.							
208				The use of USL tends to provide a balance between false positives and false negatives provided the data							
209				represents a background data set and when many onsite observations need to be compared with the BTV.							
210											

tDS

General Statistics

Total Number of Observations	84	Number of Distinct Observations	82
		Number of Missing Observations	4
Minimum	90	First Quartile	487.5
Second Largest	969	Median	647.5
Maximum	1200	Third Quartile	780.5
Mean	631.6	SD	206.9
Coefficient of Variation	0.327	Skewness	-0.351
Mean of logged Data	6.375	SD of logged Data	0.43

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.952	d2max (for USL)	3.149

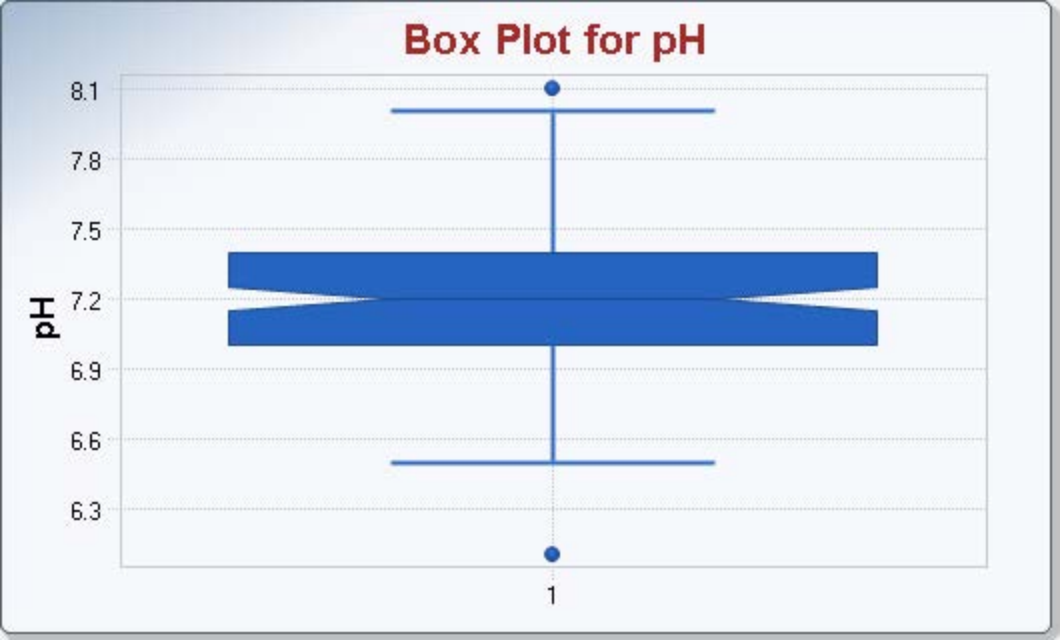
Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	82	95% UTL with 95% Coverage	942
Approx, f used to compute achieved CC	1.439	Approximate Actual Confidence Coefficient achieved by UTL	0.797
		Approximate Sample Size needed to achieve specified CC	124
95% Percentile Bootstrap UTL with 95% Coverage	942	95% BCA Bootstrap UTL with 95% Coverage	942
95% UPL	925.8	90% Percentile	861.5
90% Chebyshev UPL	1256	95% Percentile	910.2
95% Chebyshev UPL	1539	99% Percentile	1008
95% USL	1200		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.


Box Plot for pH
8.1
7.8
7.5
7.2
6.9
6.6
6.3
pH
1