SKB Environmental Cloquet Landfill, Inc.

2024 Coal Combustion Residuals Annual Monitoring Report

SKB Environmental Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota
Permit SW-399-001

January 30, 2025

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Acronyms

BTV	Background Threshold Values
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
COC	Chemicals of Concern
Eurofins TA	Eurofins TestAmerica, Inc.
GES	Groundwater & Environmental Services, Inc.
mg/L	milligrams per liter
MDH	Minnesota Department of Health
MPCA	Minnesota Pollution Control Agency
NGVD	National Geodetic Vertical Datum
ORP	Oxidation-Reduction Potential
QA/QC	Quality assurance/quality control
Report	Coal Combustion Residuals Annual Monitoring Report
SKB Cloquet Landfill	SKB Environmental Cloquet Landfill
SSI	statistically significant increase
USEPA	United States Environmental Protection Agency
USL	Upper Simultaneous Limit

1 Introduction

The *Coal Combustion Residuals Annual Monitoring Report* (Report) was prepared to summarize the results of the 2024 groundwater monitoring events and associated analysis for Appendix III, per 40 Code of Federal Regulations (CFR) §§ 257.90 – 257.98, 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-399-001 in 2011. The SKB Cloquet Landfill is located in Cloquet, Carlton County, Minnesota (**Figure 1**).

Two groundwater monitoring events were conducted at the SKB Cloquet Landfill in the spring and fall of 2024. 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 2024 Coal Combustion Residuals (CCR) groundwater monitoring events.

- Conduct two gauging and sampling events at the site's seven 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 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 CCR sampling groundwater monitoring network at SKB Cloquet Landfill was designed based on the local and regional hydrologic conditions. Currently the groundwater monitoring network system consists of seven monitoring wells (**Figure 2**). The monitoring wells used as data collection points have been divided into two 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-5R, P-6, P-7, P-8, and P-9.

For the CCR evaluation, a total of two groundwater monitoring events were conducted in 2024 on the following dates:

- April 11 and 12, 2024
- October 17 and 18, 2024

4 Groundwater Sampling Methodology

During 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 location dedicated, pneumatic low-flow bladder pump, each well was purged and field stabilization parameters including Temperature, pH, Specific Conductance, Turbidity, Dissolved Oxygen, and Oxidation-Reduction Potential (ORP) were recorded.

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 Eurofins TestAmerica, Inc. (Eurofins TA) of Amherst, New York.

Groundwater samples obtained during the two sampling events in 2024 were analyzed for parameters specified in Appendix III per §§ 257.93 – 257.94 and are noted below:

Appendix III

General Chemistry

- Chloride (Method 9056A)
- Fluoride (Method 9056A)
- Sulfate as SO_4 (Method 9056A)
- pH (Method 4500 H+ B)
- Total Dissolved Solids (TDS) (Method 2540C)

Metals (Total)

- Boron (Method 6020B)
- Calcium (Method 6020B)

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 monitoring events are presented in **Table 1**. Groundwater contours maps were generated for the April 11 and October 17, 2024 gauging events. Groundwater flow direction was calculated to be to the 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**.

Calculated BTVs for the SKB Cloquet Landfill are provided in **Table 4**. Comparing the 2024 spring and fall sampling groundwater analytical results to the BTVs (**Table 2**) is summarized below.

Appendix III Analytes - Result Summary of BTV Exceedances

Total Dissolved Solids (BTV = 969 milligrams per liter (mg/L))

- Downgradient monitoring well
  - P-6 (1,180 mg/L) (10/18/2024) – BTV exceedance.

Due to insufficient water volume, groundwater samples were not collected at monitoring well P-2 during the spring and fall 2024 sampling events.

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 § 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 through 2023.

Statistical evaluation of the 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 removal, 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 2024 sampling events with the respective BTV are listed in **Section 5.2**. Compliance is determined by comparing the current concentration to the calculated BTV. TDS at monitoring well P-6 was confirmed as a BTV exceedance; however, additional sampling is needed to confirm the exceedance and determine if the increase is statistically significant.

7 Groundwater Protection Standards

Per § 257.95(d)(2), Groundwater Protection Standards (GPS) were established for each Appendix III constituent detected in the groundwater. GPS were established using United States Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs) for detected Appendix III constituents. For constituents for which the background level is higher than the MCL, the background value will be the GPS. GPS levels are shown in **Table 5**.

Groundwater was statistically evaluated as noted in **Section 6** to form a background data set. Interwell USLs were developed for Boron, Calcium, Chloride, Fluoride, Sulfate as SO_4, and Total Dissolved Solids in site monitoring wells (P-1, P-2, P-6, P-7, P-5R, P-8, and P-9) and were utilized as background well concentrations. Note available data between 2017 and 2023 for P-3, P-5, and P-6 (wells now sealed) was also used in the assessment. Upper and lower threshold values were developed for pH using box plot statistics (**Appendix C**).

For the sampling events conducted in 2024, TDS was reported above the BTV at downgradient well P-6.

8 Report Summary

Per the 40 CFR §§ 40.257.93 – 257.94, 2 monitoring events were conducted at the SKB Cloquet Landfill in 2024. Groundwater samples were analyzed for parameters indicated in Appendix III per § 257.94. Groundwater samples were collected from the monitoring network's seven monitoring wells located at the SKB Cloquet Landfill during the two monitoring events. Monitoring well P-2 had an insufficient volume of water; therefore, was not sampled in 2024. Groundwater elevation information from the monitoring data indicates a southeast groundwater flow beneath the landfill.

The following analytes were reported above the calculated BTVs in 2024:

Appendix III Analytes

- A TDS concentration was detected above the BTV at downgradient well P-6 during the October 2024 sampling event. This concentration is not a confirmed exceedance until additional sampling is performed in spring 2025.

9 Recommendations

CCR groundwater monitoring events will be conducted in the spring and fall of 2025. Groundwater samples will be analyzed for detection monitoring parameters specified in Appendix III per § 257.94. 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 has occurred at any monitoring well. The evaluation will be performed using a tolerance or prediction interval procedure (§§ 257.93(f)(3)). The level of each constituent in the monitoring well will be compared to an established BTV. Any single constituent that exceeds the BTV is considered to be an exceedance. Confirmation sampling will determine whether the BTV exceedance is statistically significant.

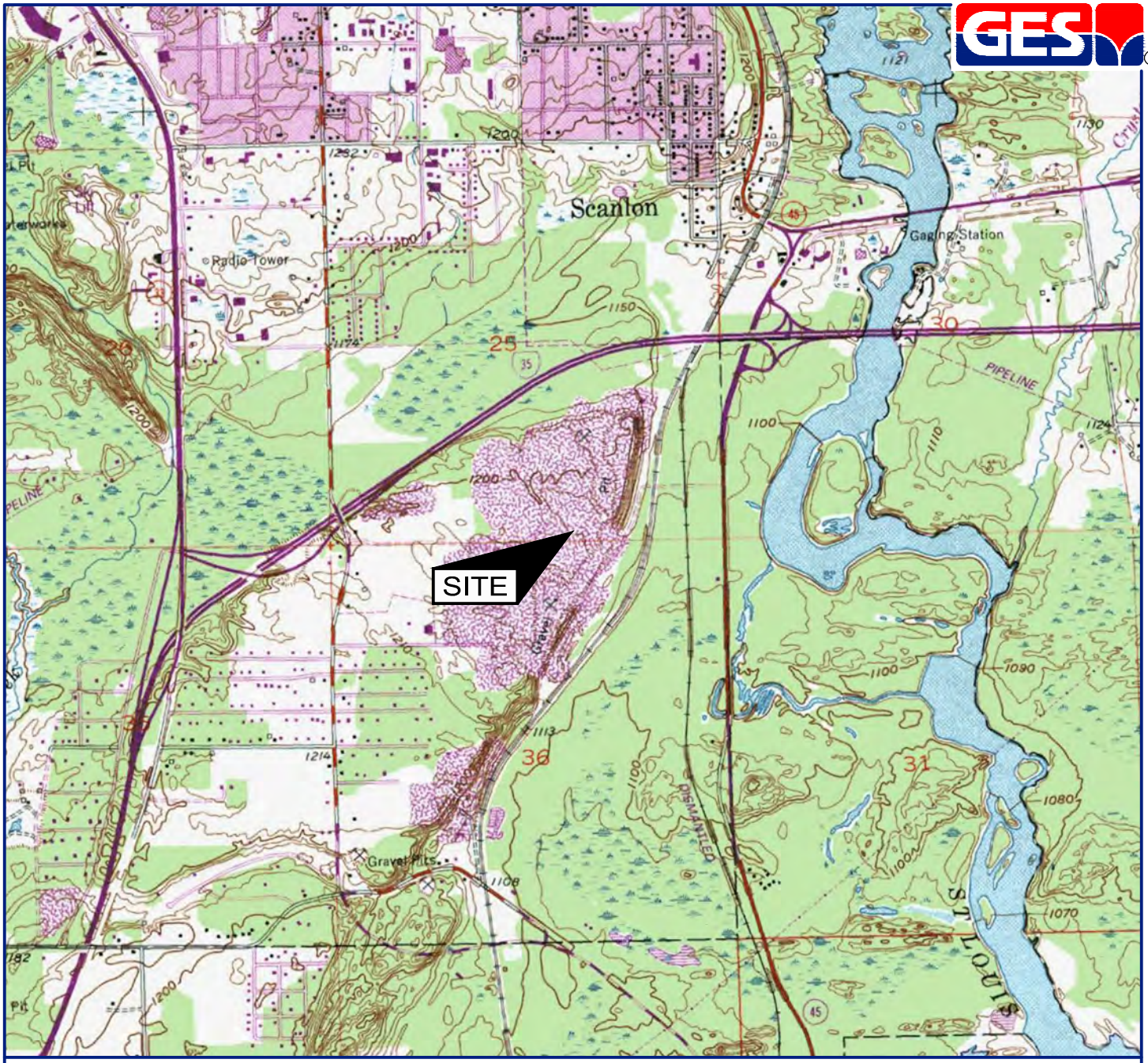
A 2025 *CCR Annual Monitoring Report* will be prepared and include sampling results from the 2025 CCR groundwater monitoring events and an evaluation of the analytical results as they pertained to BTVs.

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.	SITE LOCATION MAP
CHECKED BY: NS	SKB ENVIRONMENTAL CLOQUET LANDFILL 761 MINNESOTA STATE HIGHWAY 45 CLOQUET, MINNESOTA
REVIEWED BY: JFS	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121
NORTH	SCALE IN FEET: 0 — 2000 / DATE: 9-22-16 / FIGURE: 1

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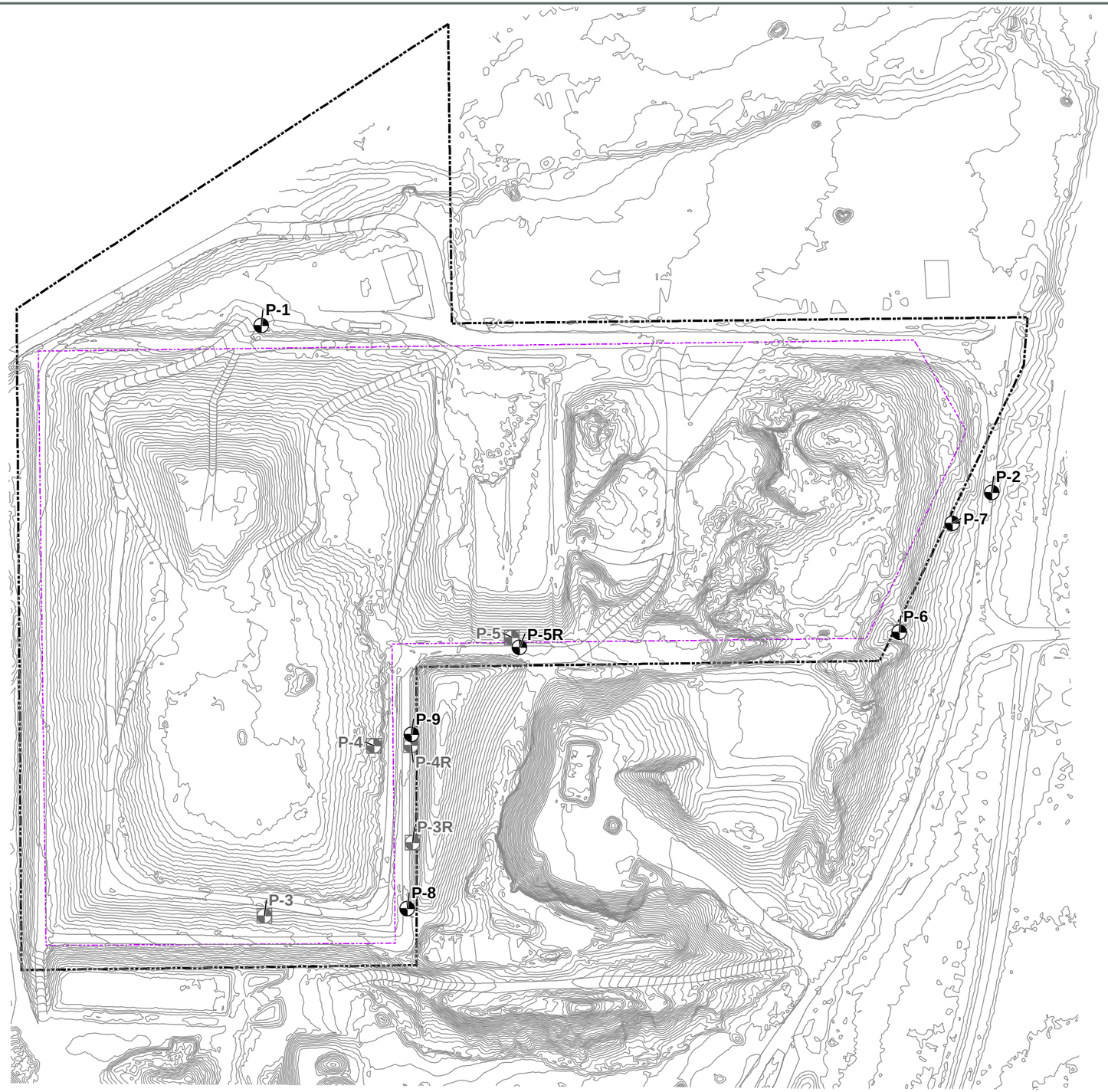

Legend

- MONITORING WELL
- SEALED MONITORING WELL
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS

Site Map

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

Drawn **R.S.**
Designed **N.S.**
Approved **NS**

Date **12/6/24**
Figure **2**

Scale In Feet (Approximate)
0 80

Groundwater & Environmental Services, Inc.

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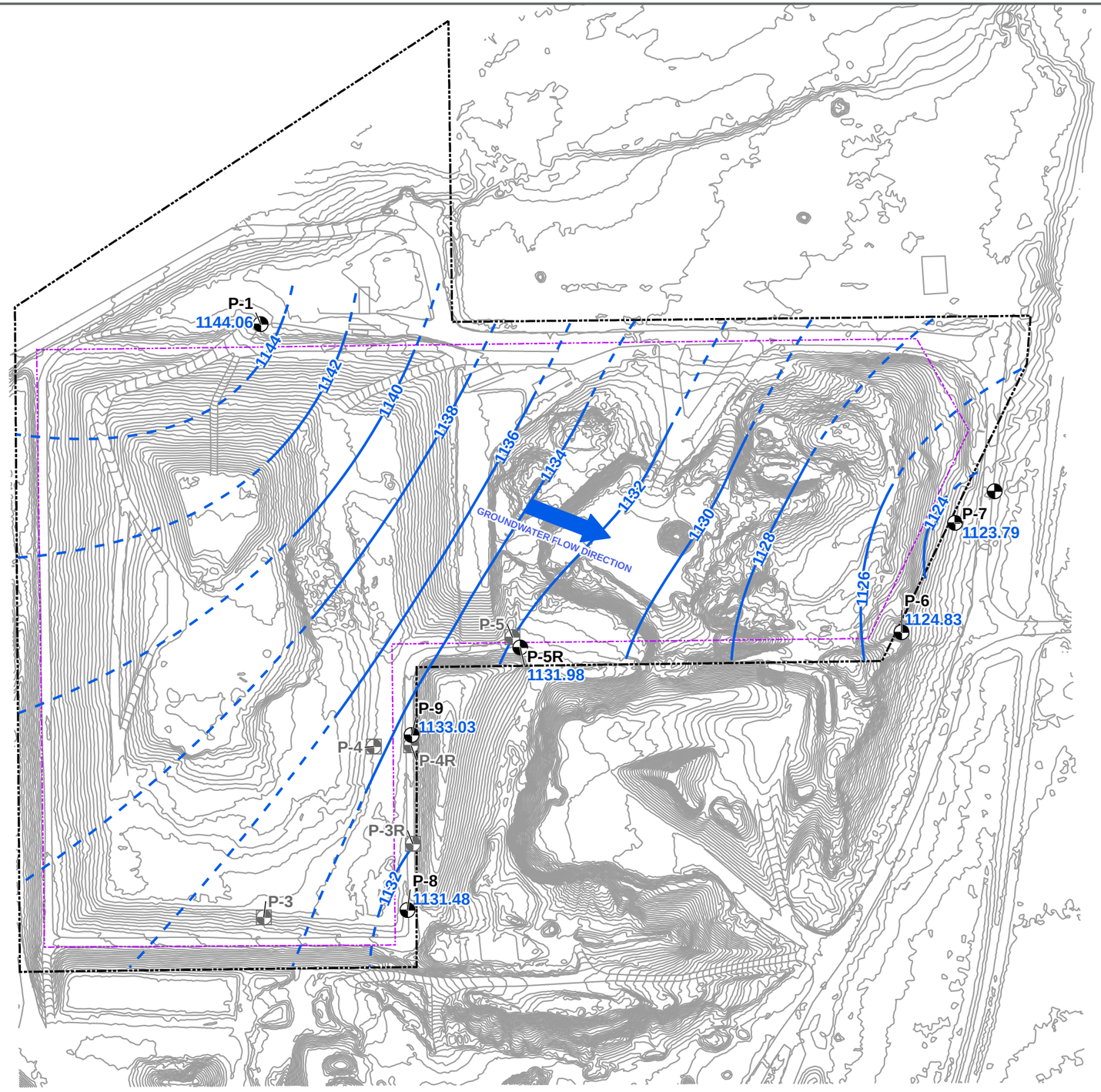

Legend

- MONITORING WELL
- SEALED MONITORING WELL
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- INFERRED GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- 1125.78 MEASURED GROUNDWATER ELEVATION (ft MSL)
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS

Groundwater Elevation Map
April 11, 2024

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

Drawn **GKS**
Designed **DMC**
Approved **NJS**

Date **5/21/24**
Figure **3**

Scale In Feet (Approximate)
0 80

Groundwater & Environmental Services, Inc.

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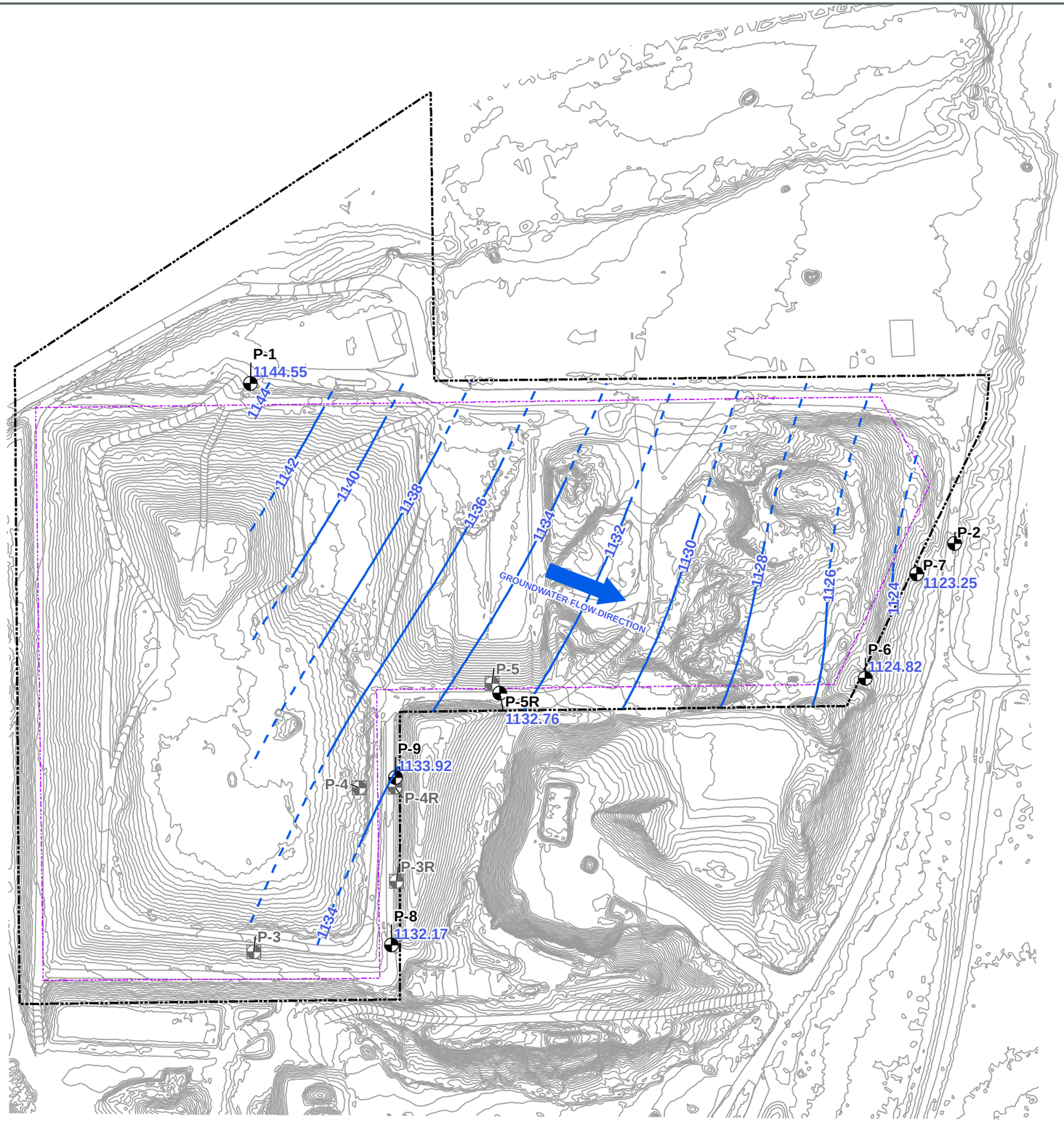

Legend

- MONITORING WELL
- SEALED MONITORING WELL
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- INFERRED GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)
- 1125.78 MEASURED GROUNDWATER ELEVATION (ft MSL)
- PROPERTY BOUNDARY
- PROPOSED WASTE LIMITS

Groundwater Elevation Map
October 17, 2024

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

Drawn **R.S.**
Designed **N.S.**
Approved **NS**

Date **12/6/24**
Figure **4**

Scale In Feet (Approximate)
0 80

Groundwater & Environmental Services, Inc.

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Tables

2024 CCR Annual Monitoring Report
SKB Cloquet Landfill
761 Minnesota State Highway 45
Cloquet, Minnesota

Table 1

Groundwater Elevations

Date	P-1	P-2	P-5R	P-6	P-7	P-8	P-9
04/11/2024	1144.06	DRY	1131.98	1124.83	1123.79	1131.48	1133.03
10/17/2024	1144.55	DRY	1132.76	1124.82	1123.25	1132.17	1133.92

*Groundwater elevations reported in feet above Mean Sea Level.

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
P-1	04/11/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-1	10/17/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-1	04/11/2024	Calcium	146	247.2	mg/l	7440-70-2
P-1	10/17/2024	Calcium	148	247.2	mg/l	7440-70-2
P-1	04/11/2024	Chloride	191	426.3	mg/l	16887-00-6
P-1	10/17/2024	Chloride	244	426.3	mg/l	16887-00-6
P-1	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-1	10/17/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-1	04/11/2024	pH	6.8	6.5 < 8.1	pH UNITS	PH
P-1	10/17/2024	pH	6.8	6.5 < 8.1	pH UNITS	PH
P-1	04/11/2024	Sulfate as SO4	26.0	386.7	mg/l	14808-79-8
P-1	10/17/2024	Sulfate as SO4	25.2	386.7	mg/l	14808-79-8
P-1	04/11/2024	Total Dissolved Solids	660	969	mg/l	TDS
P-1	10/17/2024	Total Dissolved Solids	684	969	mg/l	TDS
P-5R	04/11/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-5R	10/18/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-5R	04/11/2024	Calcium	128	247.2	mg/l	7440-70-2
P-5R	10/18/2024	Calcium	139	247.2	mg/l	7440-70-2
P-5R	04/11/2024	Chloride	225	426.3	mg/l	16887-00-6
P-5R	10/18/2024	Chloride	276	426.3	mg/l	16887-00-6
P-5R	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-5R	10/18/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-5R	04/11/2024	pH	7.1	6.5 < 8.1	pH UNITS	PH
P-5R	10/18/2024	pH	6.7	6.5 < 8.1	pH UNITS	PH
P-5R	04/11/2024	Sulfate as SO4	25.1	386.7	mg/l	14808-79-8
P-5R	10/18/2024	Sulfate as SO4	13.6	386.7	mg/l	14808-79-8
P-5R	04/11/2024	Total Dissolved Solids	746	969	mg/l	TDS
P-5R	10/18/2024	Total Dissolved Solids	848	969	mg/l	TDS
P-6	04/11/2024	Boron	0.246	0.41	mg/l	7440-42-8
P-6	10/18/2024	Boron	0.205	0.41	mg/l	7440-42-8
P-6	04/11/2024	Calcium	168	247.2	mg/l	7440-70-2
P-6	10/18/2024	Calcium	222	247.2	mg/l	7440-70-2
P-6	04/11/2024	Chloride	58.7	426.3	mg/l	16887-00-6
P-6	10/18/2024	Chloride	52.1	426.3	mg/l	16887-00-6
P-6	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-6	10/18/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-6	04/11/2024	pH	6.9	6.5 < 8.1	pH UNITS	PH
P-6	10/18/2024	pH	6.8	6.5 < 8.1	pH UNITS	PH
P-6	04/11/2024	Sulfate as SO4	157	386.7	mg/l	14808-79-8
P-6	10/18/2024	Sulfate as SO4	431	386.7	mg/l	14808-79-8
P-6	04/11/2024	Total Dissolved Solids	812	969	mg/l	TDS
P-6	**10/18/2024**	**Total Dissolved Solids**	**1180**	**969**	**mg/l**	**TDS**
P-7	04/11/2024	Boron	0.125	0.41	mg/l	7440-42-8
P-7	10/18/2024	Boron	0.185	0.41	mg/l	7440-42-8
P-7	04/11/2024	Calcium	178	247.2	mg/l	7440-70-2
P-7	10/18/2024	Calcium	167	247.2	mg/l	7440-70-2
P-7	04/11/2024	Chloride	68.8	426.3	mg/l	16887-00-6
P-7	10/18/2024	Chloride	33.5	426.3	mg/l	16887-00-6
P-7	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-7	10/18/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-7	04/11/2024	pH	6.9	6.5 < 8.1	pH UNITS	PH
P-7	10/18/2024	pH	6.9	6.5 < 8.1	pH UNITS	PH
P-7	04/11/2024	Sulfate as SO4	80.4	386.7	mg/l	14808-79-8
P-7	10/18/2024	Sulfate as SO4	139	386.7	mg/l	14808-79-8
P-7	04/11/2024	Total Dissolved Solids	796	969	mg/l	TDS
P-7	10/18/2024	Total Dissolved Solids	822	969	mg/l	TDS
P-8	04/11/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-8	10/17/2024	Boron	< 0.100	0.41	mg/l	7440-42-8

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
P-8	04/11/2024	Calcium	109	247.2	mg/l	7440-70-2
P-8	10/17/2024	Calcium	101	247.2	mg/l	7440-70-2
P-8	04/11/2024	Chloride	110	426.3	mg/l	16887-00-6
P-8	10/17/2024	Chloride	102	426.3	mg/l	16887-00-6
P-8	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-8	10/17/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-8	04/11/2024	pH	7.9	6.5 < 8.1	pH UNITS	PH
P-8	10/17/2024	pH	7.8	6.5 < 8.1	pH UNITS	PH
P-8	04/11/2024	Sulfate as SO4	30.9	386.7	mg/l	14808-79-8
P-8	10/17/2024	Sulfate as SO4	31.0	386.7	mg/l	14808-79-8
P-8	04/11/2024	Total Dissolved Solids	466	969	mg/l	TDS
P-8	10/17/2024	Total Dissolved Solids	456	969	mg/l	TDS
P-9	04/11/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-9	10/17/2024	Boron	< 0.100	0.41	mg/l	7440-42-8
P-9	04/11/2024	Calcium	103	247.2	mg/l	7440-70-2
P-9	10/17/2024	Calcium	88.2	247.2	mg/l	7440-70-2
P-9	04/11/2024	Chloride	164	426.3	mg/l	16887-00-6
P-9	10/17/2024	Chloride	139	426.3	mg/l	16887-00-6
P-9	04/11/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-9	10/17/2024	Fluoride	< 1.00	0.50	mg/l	16984-48-8
P-9	04/11/2024	pH	7.6	6.5 < 8.1	pH UNITS	PH
P-9	10/17/2024	pH	7.6	6.5 < 8.1	pH UNITS	PH
P-9	04/11/2024	Sulfate as SO4	28.3	386.7	mg/l	14808-79-8
P-9	10/17/2024	Sulfate as SO4	25.2	386.7	mg/l	14808-79-8
P-9	04/11/2024	Total Dissolved Solids	594	969	mg/l	TDS
P-9	10/17/2024	Total Dissolved Solids	536	969	mg/l	TDS

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

Table 3

Well Stabilization Data

Well ID	Sample Date	Purge Rate (ml/min)	Purge Volume (gallons)	Field pH (pH)	Field Specific Conductivity (umhos/cm)	Field Temp (^{0}C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	ORP (mV)
P-1	4/11/2024	1000	0.1	7.50	1180	9.45	4.37	84.0	-31
P-1	4/11/2024	1000	1	6.57	1210	8.21	3.15	1.5	55
P-1	4/11/2024	1000	2	6.40	1210	8.14	2.93	1.7	73
P-1	4/11/2024	1000	3	6.27	1210	8.10	2.81	1.7	74
P-1	4/11/2024			6.25	1210	8.10	2.81	1.8	79
P-1	10/17/2024	1000	0.1	7.50	1410	11.48	3.07	7.7	49
P-1	10/17/2024	1000	1	6.80	1360	11.05	1.56	0.5	78
P-1	10/17/2024	1000	2	6.76	1360	11.01	1.44	0.0	88
P-1	10/17/2024	1000	3.5	6.59	1340	11.00	1.36	0.0	98
P-1	10/17/2024			6.58	1340	10.99	1.33	0.0	101
P-5R	4/11/2024	1000	0.1	7.06	1280	12.01	2.93	9.5	-110
P-5R	4/11/2024	1000	2	6.76	1320	11.63	0.79	3.1	-124
P-5R	4/11/2024	1000	4	6.71	1330	11.73	0.59	3.1	-124
P-5R	4/11/2024	1000	6	6.69	1330	11.58	0.26	3.9	-126
P-5R	4/11/2024			6.68	1330	11.66	0.19	4.3	-126
P-5R	10/18/2024	1000	0.1	6.74	1630	11.60	0.00	7.6	-104
P-5R	10/18/2024	1000	2	6.54	1620	11.50	0.00	4.6	-110
P-5R	10/18/2024	1000	4	6.49	1610	11.51	0.00	3.5	-109
P-5R	10/18/2024	1000	6.5	6.49	1590	11.50	0.00	1.4	-106
P-5R	10/18/2024			6.47	1580	11.50	0.00	1.5	-106
P-6	4/12/2024	1000	0.1	7.41	1330	6.63	5.86	19.1	102
P-6	4/12/2024	1000	1	6.57	1270	7.85	1.63	7.2	131
P-6	4/12/2024	1000	2	6.44	1250	7.99	1.73	4.7	140
P-6	4/12/2024	1000	3	6.41	1240	8.01	1.70	4.6	140
P-6	4/12/2024			6.38	1250	8.03	1.62	3.5	141
P-6	10/18/2024	1000	0.1	6.72	1710	9.56	0.00	19.1	49
P-6	10/18/2024	1000	1	6.63	1740	9.20	0.00	0.8	54
P-6	10/18/2024	1000	2	6.62	1730	9.19	0.00	0.0	60
P-6	10/18/2024	1000	3	6.62	1730	9.19	0.00	0.0	61
P-6	10/18/2024			6.61	1720	9.18	0.00	0.0	63
P-7	4/12/2024	1000	0.1	7.04	1220	6.80	7.59	31.3	107
P-7	4/12/2024	1000	0.5	6.75	1310	6.83	4.98	51.0	57
P-7	4/12/2024	1000	0.75	6.65	1330	6.88	4.38	46.0	40
P-7	4/12/2024	1000	1	6.63	1340	6.89	4.21	41.6	37
P-7	4/12/2024			6.61	1340	6.91	4.05	37.2	36
P-7	10/18/2024	1000	0.1	6.75	1380	10.48	2.73	49.7	-62
P-7	10/18/2024	1000	0.5	6.66	1400	10.20	1.75	49.9	-67
P-7	10/18/2024	1000	0.75	6.65	1400	10.15	1.50	41.3	-63
P-7	10/18/2024	1000	1	6.65	1400	10.14	1.45	35.1	-60
P-7	10/18/2024			6.64	1400	10.10	1.37	31.9	-56
P-8	4/11/2024	1000	0.1	7.90	768	11.71	5.42	11.3	-226
P-8	4/11/2024	1000	5	7.70	827	10.80	2.80	8.2	-193
P-8	4/11/2024	1000	10	7.68	847	10.63	0.17	6.9	-190
P-8	4/11/2024	1000	15.5	7.67	859	10.46	0.58	4.9	-188
P-8	4/11/2024			7.68	859	10.46	0.57	5.2	-187
P-8	10/17/2024	1000	0.1	7.44	765	12.26	0.08	161.0	-59
P-8	10/17/2024	1000	5	7.62	860	10.74	0.00	8.6	-136
P-8	10/17/2024	1000	10	7.61	889	10.63	0.00	7.1	-148
P-8	10/17/2024	1000	16	7.61	898	10.66	0.00	4.9	-151
P-8	10/17/2024			7.61	899	10.66	0.00	5.4	-151
P-9	4/11/2024	1000	0.1	7.32	962	13.77	0.74	81.4	-217

Table 3

Well Stabilization Data

Well ID	Sample Date	Purge Rate (ml/min)	Purge Volume (gallons)	Field pH (pH)	Field Specific Conductivity (umhos/cm)	Field Temp (^{0}C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	ORP (mV)
P-9	4/11/2024	1000	1.5	7.53	1010	12.35	0.37	18.7	-213
P-9	4/11/2024	1000	3	7.45	1030	11.94	0.38	9.4	-207
P-9	4/11/2024	1000	5	7.35	1050	11.63	0.38	6.4	-200
P-9	4/11/2024			7.34	1060	11.72	0.35	6.3	-200
P-9	10/17/2024	1000	0.1	7.83	862	17.80	0.00	166	-231
P-9	10/17/2024	1000	2	7.73	1030	11.70	0.00	20.1	-209
P-9	10/17/2024	1000	4	7.66	1030	11.68	0.00	13.6	-209
P-9	10/17/2024	1000	5.5	7.61	1030	11.68	0.00	14.2	-209
P-9	10/17/2024			7.55	1030	11.67	0.00	12.6	-208

Notes:

ml/min	milliliters per minute	NTU	Nephelometric Turbidity Units
umhos/cm	micromhos per centimeter	ORP	oxidation-reduction potential
^{o}C	degrees Celsius	mV	millivolts
mg/L	milligrams per Liter		

Table 4

Background Threshold Values

Appendix III to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Boron	0.41	mg/l	7440-42-8
Calcium	247.2	mg/l	7440-70-2
Chloride	426.3	mg/l	16887-00-6
Fluoride	0.50	mg/l	15984-48-8
pH	lower 6.5 upper 8.1	pH UNITS	PH
Sulfate as SO4	386.7	mg/l	14808-79-8
Total Dissolved Solids	969	mg/l	TDS

Results in milligrams per liter (mg/l)

Table 5

2024 Groundwater Protection Standards

Appendix III to Part 257

Parameter	Background Threshold Value (BTV)	EPA Maximum Contaminate Level (MCL)	Groundwater Protection Standard (GPS)	Units	CAS #
Boron	0.41	--	--	mg/l	7440-36-0
Calcium	247.2	--	--	mg/l	7440-38-2
Chloride	426.3	--	--	mg/l	7440-39-3
Fluoride	0.50	0.004	0.004	mg/l	7440-41-7
pH	lower 6.5 upper 8.1	--	--	pH	7440-43-9
Sulfate as SO4	386.7	--	--	mg/l	7440-47-3
Total Dissolved Solids	969	--	--	mg/l	7440-48-4

Results in milligrams per liter (mg/l)

Appendix A – Field Data Sheets

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/11/24 9:05

Initial Water Level (feet): 11.55 ~~11.02~~

Ground Water Elevation (ft, msl): ~~1144.59~~

Top of Casing (ft, msl) 1155.61

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-1

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): [illegible]

Casing Length (ft) 17.7

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 1.0 ~~1.1~~

Total Volume Purged (gal): 3.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 11.62'

Date/Time Completed: 4/11/24 9:28

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
9:05	1000	0.1	9.45	7.50	1,180	8.40	4.37	-31
9:10	1000	1.0	8.21	6.57	1,216	1.5	3.15	55
9:15	1000	2.0	8.14	6.40	1,216	1.7	2.93	73
9:20	1000	3.0	8.10	6.27	1,210	1.7	2.81	74

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-1

Water Lever @ Sampling (ft): 11.62'

Well Collection Sequence 1 of 7

Parameters: Annual _____ Semiannual: X Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
4/11/24 9:25	VOCs: 100 Other: 100	8.10	6.25	1,210	1.9	2.81	79

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 49°F, Sunny, 5-10 mph N

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle)

# of Bottles Collected: 11/4

Well Closed and Locked: (Yes) No (circle)

Notes: _____

Minnesota Unique Well ID: 728520

Date: 4/11/24 By: M Schlagel Title: Staff Env Scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/11/24 9:50

Initial Water Level (feet): 57.91'

Ground Water Elevation (ft, msl): ~~0~~

Top of Casing (ft, msl) –

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA Pump/Refill 6/7

Sample Location: P-8

Duplicate Collected: Yes

Field Blank Collected: Yes

Equipment Blank Collected: No

MS/MSD Collected: Yes

Sampler(s): M. Sinclair

Casing Length (ft) 89.05

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 5.08 ~~2.2~~

Total Volume Purged (gal): 15.5

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 57.92'

Date/Time Completed: 4/11/24 11:10

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
9:50	1000	0.1	11.71	7.90	768	11.3	5.42	-224
10:15	1000	5.0	10.80	7.70	827	8.2	2.80	-193
10:40	1000	10.0	10.63	7.68	847	6.9	0.17	-190
11:05	1000	15.5	10.46	7.67	859	4.9	0.58	-188

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-8

Water Lever @ Sampling (ft): 57.92'

Well Collection Sequence 2 of 7

Parameters: Annual _____ Semiannual: X Quarterly: _____ Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
11:12 4/11/24	VOCs: 100 Other: 1000	10.46	7.68	859	5.2	0.57	-183

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 50°F, sunny, 5-10 mph NW

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle) # of Bottles Collected: 11/4

Well Closed and Locked: (Yes) No (circle)

Notes: _____

Minnesota Unique Well ID: 856321

Date: 4/11/24 By: N. Sunberg Title: staff environ. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/11/24 13:00

Initial Water Level (feet): 49.70

Ground Water Elevation (ft, msl): ~~0~~

Top of Casing (ft, msl) –

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA

Sample Location: P-9

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): N. Schlegel

Casing Length (ft) 59.15

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 1.54 ~~2.2~~

Total Volume Purged (gal): 5.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 49.75'

Date/Time Completed: 4/11/24 13:20

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
13:00	1000	0.1	13.77	7.32	962	81.4	0.74	-217
13:05	1000	1.5	12.35	7.53	1,010	18.7	0.37	-213
13:10	1000	3.0	11.94	7.45	1,034	9.4	0.38	-207
13:15	1000	5.0	11.63	7.35	1,050	6.4	0.30	-200

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-9

Water Lever @ Sampling (ft): 44.75'

Well Collection Sequence 4 of 7

Parameters: Annual _____ Semiannual: X Quarterly: _____ Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
13:20 4/11/24	VOCs: 100 Other: 100	11.72	7.34	1,060	6.3	0.35	-200

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: partly cloudy, 5-10 mph NW

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle)

# of Bottles Collected: 11/4

Well Closed and Locked: (Yes) No (circle

Notes: _____

Minnesota Unique Well ID: 762047

Date: 4/11/24 By: M-Swingle Title: Staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/11/24 13:45

Initial Water Level (feet): 61.05'

Ground Water Elevation (ft, msl): ~~0~~

Top of Casing (ft, msl) –

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-5R

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): N. Schlagel

Casing Length (ft) 73.2

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 1.99 ~~6.3~~

Total Volume Purged (gal): 6.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 61.05'

Date/Time Completed: 4/11/24 14:05

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
13:45	1000	0.1	12.01	7.06	1,280	9.5	2.93	-116
13:50	1000	2.0	11.63	6.76	1,320	3.1	0.79	-124
13:55	1000	4.0	11.73	6.71	1,330	3.1	0.59	-124
14:00	1000	6.0	11.58	6.69	1,330	3.9	0.26	-126

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-5R

Water Lever @ Sampling (ft): 61.05

Well Collection Sequence 4 of 7

Parameters: Annual _____ Semiannual: X

Quarterly: ~~X~~ Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
14:06 4/11/24	VOCs: 700 Other: 1000	11.66	6.68	1,330	4.3	0.19	-126

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 55°F, mostly cloudy, 5-10 mph NW

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle) # of Bottles Collected: 11/4

Well Closed and Locked: (Yes) No (circle)

Notes: _____

Minnesota Unique Well ID: 856322

Date: 4/11/24 By: [signature] Title: Staff environmental scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/12/24 9:40

Initial Water Level (feet): 30.60' ~~29.9~~

Ground Water Elevation (ft, msl): ~~1125.53~~

Top of Casing (ft, msl) 1155.43

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA

Sample Location: P-6

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): N. Schlagel

Casing Length (ft) 36.2

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 0.91 ~~1.1~~

Total Volume Purged (gal): 3.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 30.66'

Date/Time Completed: 4/12/24 9:40

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
8:40	1000	0.1	6.63	7.41	1,330	19.1	5.86	102
8:45	1000	1.0	7.85	6.57	1,270	7.2	1.65	131
8:50	1000	2.0	7.99	6.44	1,250	4.7	1.73	140
8:55	1000	3.0	8.01	6.41	1,240	4.6	1.70	140

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: P-6

Water Lever @ Sampling (ft): 30.66' Well Collection Sequence 5 of 7

Parameters: Annual _____ Semiannual: X Quarterly: _____ Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
9:00 4/12/24	VOCs: 100 Other: 100	8.03	6.39	1,250	3.5	1.65	141

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 43°F, cloudy, 10-15 mph W

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle) # of Bottles Collected: 11/4

Well Closed and Locked: Yes No (circle

Notes: _____

Minnesota Unique Well ID: 722809

Date: 4/12/24 By: N. Sinclair Title: staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 4/12/24 9:15

Initial Water Level (feet): 15.60 ~~16.12~~

Ground Water Elevation (ft, msl): ~~1123.27~~

Top of Casing (ft, msl) ~~1139.39~~

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA

Sample Location: P-7

Duplicate Collected: N

Field Blank Collected: No

Equipment Blank Collected: Yes

MS/MSD Collected: No

Sampler(s): M. Sunberg

Casing Length (ft) 19.6

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): ~~0.6~~

Total Volume Purged (gal): 1.0 slow recharge

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 18.27'

Date/Time Completed: 4/12/24 9:38

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
9:15	1000	0.1	6.80	7.04	1,220	31.3	7.54	107
9:20	1000	0.5	6.93	6.75	1,310	51.0	4.98	57
9:25	1000	0.75	6.88	6.65	1,330	46.0	4.38	40
9:30	1000	1.0	6.99	6.63	1,340	41.6	4.21	37

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-7

Water Lever @ Sampling (ft): 18.27'

Well Collection Sequence 6 of 7

Parameters: Annual _____ Semiannual: _____ Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
9:55 4/12/24	VOCs: 100 Other: 1000	6.91	6.61	1,340	37.2	4.05	36

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 45°F, cloudy, 10-15 mph W

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle) # of Bottles Collected: 11/4

Well Closed and Locked: Yes No (circle

Notes: _____

Minnesota Unique Well ID: 772807

Date: 4/12/24 By: [illegible] Title: staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

Sample Location: P-1

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): M. Schlagel

Casing Length (ft) 17.7

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 1.08

Total Volume Purged (gal): 3.5

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 11.10'

Date/Time Completed: 10/17/24 10:40

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/17/24 10:20

Initial Water Level (feet): 11.06'

Ground Water Elevation (ft, msl): 1,144.55

Top of Casing (ft, msl) 1155.61

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
10:20	1000	0.1	11.48	7.50	1,410	7.7	3.07	49
10:25	1000	1.0	11.05	6.80	1,360	0.5	1.56	78
10:30	1000	2.0	11.01	6.76	1,360	0.0	1.44	88
10:35	1000	3.5	11.00	6.59	1,340	0.0	1.36	98

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-1

Water Lever @ Sampling (ft): 11.10'

Well Collection Sequence 1 of 7

Parameters: Annual _____ Semiannual: _____

Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
1040 10/17/24	VOCs: 100 Other: 100	10.99	6.58	1,340	0.0	1.33	101

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 50% sunny, 15-20 mph S

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle)

# of Bottles Collected: 13/3

Well Closed and Locked: Yes No (circle)

Notes: _____

Minnesota Unique Well ID: 728520

Date: 10/17/24 By: N. Schlegel Title: staff environmental

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/17/24 11:00

Initial Water Level (feet): 57.22'

Ground Water Elevation (ft, msl): 1,132.17

Top of Casing (ft, msl) 1189.39

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-8

Duplicate Collected: Yes

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: Yes

Sampler(s): M-Schlegel

Casing Length (ft) 89.05

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 5.19

Total Volume Purged (gal): 16.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 57.25

Date/Time Completed: 10/17/24 12:20

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
11:00	1000	0.1	12.26	7.44	765	161	0.08	-59
11:25	1000	5.0	10.74	7.62	860	8.6	0.00	-106
11:50	1000	10.0	10.63	7.61	889	7.1	0.00	-148
12:15	1000	16.0	10.66	7.61	896	4.9	0.00	-151

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-8

Water Lever @ Sampling (ft): 57.25'

Well Collection Sequence 2 of 7

Parameters: Annual _____ Semiannual: _____

Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
1220 10/17/24	VOCs: 100 Other: 1000	10.66	7.61	899	5.4	0.00	-151

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 62°F, sunny, 15-20 mph S

Dusty, due to high winds + adjacent gravel pit operations upwind

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle)

# of Bottles Collected: 13/3

Well Closed and Locked: Yes No (circle

Notes: _____

Minnesota Unique Well ID: 856321

Date: 10/17/24 By: N. Schlegel Title: Staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/17/24 12:55

Initial Water Level (feet): 48.81'

Ground Water Elevation (ft, msl): 1,133.92'

Top of Casing (ft, msl) 1182.73

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-9

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): N. Schlagel

Casing Length (ft) 59.15

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 1.69

Total Volume Purged (gal): 5.5

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 48.83'

Date/Time Completed: 10/17/24 13:15

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS / umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
12:55	1000	0.1	17.80	7.89	982	166	0.00	-231
13:00	1000	2.0	11.70	7.73	1,030	20.1	0.00	-209
13:05	1000	4.0	11.68	7.66	1,030	13.6	0.00	-209
13:10	1000	5.5	11.68	7.61	1,030	14.2	0.00	-209

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-9

Water Lever @ Sampling (ft): 48.83'

Well Collection Sequence 3 of 7

Parameters: Annual _____ Semiannual: _____

Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
13:15 10/17/24	VOCs: 100 Other: 100	11.67	7.55	1,030	12.50	0.00	-208

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 63°F sunny, 15-20 mph south

Dusty, from upwind adjacent gravel pit operations

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle)

# of Bottles Collected: 13/3

Well Closed and Locked: Yes No (circle

Notes: _____

Minnesota Unique Well ID: 762047

Date: 10/17/24 By: N. Schlagel Title: Staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/18/24 9:00

Initial Water Level (feet): 60.22'

Ground Water Elevation (ft, msl): 1,132.76'

Top of Casing (ft, msl) 1192.98

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-5R

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): K. Schlagel

Casing Length (ft) 73.2

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 2.12

Total Volume Purged (gal): 6.5

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 60.25'

Date/Time Completed: 10/18/24 9:35

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
9:00	1000	0.1	11.60	6.74	1,630	7.6	0.00	-104
9:10	1000	2.0	11.50	6.54	1,620	4.6	0.00	-110
9:20	1000	4.0	11.51	6.49	1,610	3.5	0.00	-109
9:30	1000	6.5	11.50	6.49	1,590	1.4	0.00	-106

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Water Lever @ Sampling (ft): 60.25'

Sample Point ID: P-5R

Well Collection Sequence: 4 of 7

Parameters: Annual _____ Semiannual: _____ Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
9:35 10/18/24	VOCs: 100 Other: 1000	11.56	6.47	1,580	1.5	0.00	-106

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 55°F, sunny; 10-15 mph S

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle)

# of Bottles Collected: 13/3

Well Closed and Locked: Yes No (circle)

Notes: _____

Minnesota Unique Well ID: 856322

Date: 10/18/24 By: N. Schlapel Title: staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/18/24 10:35

Initial Water Level (feet): 30.61'

Ground Water Elevation (ft, msl): 1124.82'

Top of Casing (ft, msl) 1155.43

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-6

Duplicate Collected: NO

Field Blank Collected: No

Equipment Blank Collected: NO

MS/MSD Collected: No

Sampler(s): N. Schlagel

Casing Length (ft) 36.2

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 0.91

Total Volume Purged (gal): 3.0

Purged Dry?: Yes (No) (circle)

Water Level After Purge (ft): 30.63'

Date/Time Completed: 10/18/24 10:40

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
10:15	1000	0.1	9.56	6.72	1,710	19.1	0.00	49
10:25	1000	1.0	9.20	6.63	1,740	0.9	0.00	54
10:30	1000	2.0	9.19	6.62	1,730	0.0	0.00	60
10:35	1000	3.0	9.19	6.62	1,730	0.0	0.00	61

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Water Lever @ Sampling (ft): 30.63'

Sample Point ID: P-6

Well Collection Sequence: 5 of 7

Parameters: Annual _____ Semiannual: _____

Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
10:40 10/18/24	VOCs: 100 Other: 100	9.18	6.61	1,720	0.0	0.00	63

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 58°F, sunny 10-15 mph S

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle) # of Bottles Collected: 13/3

Well Closed and Locked: (Yes) No (circle

Notes: _____

Minnesota Unique Well ID: 772808

Date: 10/18/24 By: A. Schlegel Title: staff env. scientist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/18/24 11:10

Initial Water Level (feet): 16.14'

Ground Water Elevation (ft, msl): 1,123.25'

Top of Casing (ft, msl) 1139.39

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

Sample Location: P-7

Duplicate Collected: No

Field Blank Collected: Yes

Equipment Blank Collected: Yes

MS/MSD Collected: No

Sampler(s): M. Sundquist

Casing Length (ft) 19.6

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal): 0.56

Total Volume Purged (gal): 1.0 slow recharge

Purged Dry?: (Yes) No (circle)

Water Level After Purge (ft): 18.6

Date/Time Completed: 10/18/24 11:40

PURGE DATA

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS. - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
11:10	1000	0.1	10.48	6.75	1,380	49.7	2.73	-62
11:15	1000	0.5	10.20	6.66	1,400	49.9	1.78	-67
11:23	1000	0.75	10.15	6.65	1,400	41.3	1.50	-63
11:35	1000	1.0	10.14	6.65	1,400	35.1	1.45	-60

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: P-7

Water Lever @ Sampling (ft): 18.6

Well Collection Sequence 6 of 7

Parameters: Annual _____ Semiannual: _____ Quarterly: X Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
11:40 10/18/24	VOCs: 100 Other: 1000	10.10	6.64	1,400	31.9	1.37	-58

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: 62°F, sunny, 10-15 mph S

Sampling Characteristics: clear

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: (Yes) No (circle) # of Bottles Collected: 3/3

Well Closed and Locked: (Yes) No (circle)

Notes: _____

Minnesota Unique Well ID: 772807

Date: 10/18/24 By: N. Schlagel Title: Staff environmentalist

Company: Groundwater and Environmental Services, Inc.

FIELD INFORMATION LOG Part 1

Facility: Cloquet Landfill

Location: Cloquet, MN

Sample Matrix: Groundwater

PURGE INFORMATION

Method of Well Purge: Dedicated Bladder Pump

Date/Time Initiated: 10/8/24 12:00

Initial Water Level (feet): DRY

Ground Water Elevation (ft, msl):

Top of Casing (ft, msl) 1131.79

PID (Background) 0.0 (PPM)

PID (Headspace) 0.0 (PPM)

PURGE DATA

Sample Location: P-2

Duplicate Collected: No

Field Blank Collected: No

Equipment Blank Collected: No

MS/MSD Collected: No

Sampler(s): K. Schlegel

Casing Length (ft) 10.4

Dedicated Equipment: Yes

Casing Diameter (inches): 2

One Casing Volume (gal):

Total Volume Purged (gal):

Purged Dry?: Yes No (circle)

Water Level After Purge (ft):

Date/Time Completed: 10/8/24 12:00

Time	Purge Rate (mL/min)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Disolved Oxygen (mg/L)	ORP (mV)
		DTD	DO NOT			SAMPLE		
		WELL IS DRY						

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: P-2

Water Lever @ Sampling (ft): _____ Well Collection Sequence _____ of _____

Parameters: Annual _____ Semiannual: _____ Quarterly: _____ Monthly: _____ Other: _____

SAMPLE DATA:

Time & Date	Sample Rate	Temp (°C)	pH (std units)	Specific Conductance (uS - umhos/cm)	Turbidity (NTU)	Dissolved O_2 (mg/L)	O_2 Reduction Potential (mV)
	VOCs:						
	Other:						

YSI Serial Number: _____

YSI Sonde Serial Number: _____

GENERAL INFORMATION:

Weather Conditions @ sampling: _____

_____

Sampling Characteristics: _____

COMMENTS AND OBSERVATIONS:

Full Bottle Set Collected: Yes No (circle) # of Bottles Collected: _____

Well Closed and Locked: Yes No (circle

Notes: _____

Minnesota Unique Well ID: _____

Date: _____ By: _____ Title: _____

Company: Groundwater and Environmental Services, Inc.

NO SAMPLE

WELL IS DRY

Appendix B – Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Lindstrom
Waste Connections, Inc.
13425 Courthouse Blvd
Rosemount, Minnesota 55068

Generated 4/25/2024 10:38:26 AM

JOB DESCRIPTION

SKB Cloquet CCR Groundwater
CCR Groundwater (Spring)

JOB NUMBER

310-278926-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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4/25/2024 10:38:26 AM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

Table of Contents

Job ID: 310-278926-1 Eurofins Cedar Falls

Job Narrative
310-278926-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/13/2024 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.1°C and 1.4°C.

HPLC/IC
Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: Duplicate 1 - CCR (310-278926-1), P-1 - CCR (310-278926-2), P-8 - CCR (310-278926-3), P-9 - CCR (310-278926-4), P-6 - CCR (310-278926-5) and P-7 - CCR (310-278926-6). 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

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

Job ID: 310-278926-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-278926-1	Duplicate 1 - CCR	Ground Water	04/11/24 00:00	04/13/24 09:50
310-278926-2	P-1 - CCR	Ground Water	04/11/24 09:25	04/13/24 09:50
310-278926-3	P-8 - CCR	Ground Water	04/11/24 11:10	04/13/24 09:50
310-278926-4	P-9 - CCR	Ground Water	04/11/24 13:20	04/13/24 09:50
310-278926-5	P-6 - CCR	Ground Water	04/11/24 09:00	04/13/24 09:50
310-278926-6	P-7 - CCR	Ground Water	04/11/24 09:35	04/13/24 09:50
310-278926-7	Equipment Blank - CCR	Water	04/11/24 09:50	04/13/24 09:50
310-278926-8	Field Blank - CCR	Water	04/11/24 11:45	04/13/24 09:50
310-278926-9	P-5R - CCR	Ground Water	04/11/24 14:05	04/13/24 09:50

Detection Summary

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

Job ID: 310-278926-1

Client Sample ID: Duplicate 1 - CCR — Lab Sample ID: 310-278926-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	111		5.00		mg/L	5		9056A	Total/NA
Sulfate	31.5		5.00		mg/L	5		9056A	Total/NA
Calcium	104		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	486		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-1 - CCR — Lab Sample ID: 310-278926-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	191		5.00		mg/L	5		9056A	Total/NA
Sulfate	26.0		5.00		mg/L	5		9056A	Total/NA
Calcium	146		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	660		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-8 - CCR — Lab Sample ID: 310-278926-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	110		5.00		mg/L	5		9056A	Total/NA
Sulfate	30.9		5.00		mg/L	5		9056A	Total/NA
Calcium	109		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	466		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-9 - CCR — Lab Sample ID: 310-278926-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	164		5.00		mg/L	5		9056A	Total/NA
Sulfate	28.3		5.00		mg/L	5		9056A	Total/NA
Calcium	103		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	594		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-6 - CCR — Lab Sample ID: 310-278926-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	58.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	157		5.00		mg/L	5		9056A	Total/NA
Boron	0.246		0.100		mg/L	1		6020B	Total/NA
Calcium	168		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	812		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-7 - CCR — Lab Sample ID: 310-278926-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	68.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	80.4		5.00		mg/L	5		9056A	Total/NA
Boron	0.125		0.100		mg/L	1		6020B	Total/NA
Calcium	178		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	796		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	1.0		SU	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: 310-278926-1

Client Sample ID: Equipment Blank - CCR — Lab Sample ID: 310-278926-7

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.1	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: Field Blank - CCR — Lab Sample ID: 310-278926-8

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-5R - CCR — Lab Sample ID: 310-278926-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	225		5.00		mg/L	5		9056A	Total/NA
Sulfate	25.1		5.00		mg/L	5		9056A	Total/NA
Calcium	128		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	746		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.1	HF	1.0		SU	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: 310-278926-1

Client Sample ID: Duplicate 1 - CCR

Date Collected: 04/11/24 00:00
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-1

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**111**		5.00		mg/L			04/16/24 13:56	5
Fluoride	<1.00		1.00		mg/L			04/16/24 13:56	5
Sulfate	**31.5**		5.00		mg/L			04/16/24 13:56	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 20:41	1
Calcium	**104**		0.500		mg/L		04/17/24 09:00	04/24/24 20:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**486**		50.0		mg/L			04/16/24 17:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.9**	**HF**	1.0		SU			04/13/24 11:07	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: P-1 - CCR

Date Collected: 04/11/24 09:25
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-2

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**191**		5.00		mg/L			04/16/24 14:08	5
Fluoride	<1.00		1.00		mg/L			04/16/24 14:08	5
Sulfate	**26.0**		5.00		mg/L			04/16/24 14:08	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 20:45	1
Calcium	**146**		0.500		mg/L		04/17/24 09:00	04/24/24 20:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**660**		50.0		mg/L			04/16/24 17:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.8**	**HF**	1.0		SU			04/13/24 11:08	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: P-8 - CCR

Date Collected: 04/11/24 11:10
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-3

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		5.00		mg/L			04/16/24 14:20	5
Fluoride	<1.00		1.00		mg/L			04/16/24 14:20	5
Sulfate	**30.9**		5.00		mg/L			04/16/24 14:20	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 20:48	1
Calcium	**109**		0.500		mg/L		04/17/24 09:00	04/24/24 20:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**466**		50.0		mg/L			04/15/24 18:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.9**	**HF**	1.0		SU			04/13/24 11:05	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: P-9 - CCR

Date Collected: 04/11/24 13:20
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-4

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**164**		5.00		mg/L			04/16/24 14:57	5
Fluoride	<1.00		1.00		mg/L			04/16/24 14:57	5
Sulfate	**28.3**		5.00		mg/L			04/16/24 14:57	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 21:18	1
Calcium	**103**		0.500		mg/L		04/17/24 09:00	04/24/24 21:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**594**		50.0		mg/L			04/15/24 18:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.6**	**HF**	1.0		SU			04/13/24 11:09	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: P-6 - CCR

Date Collected: 04/11/24 09:00
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-5

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.7		5.00		mg/L			04/16/24 15:33	5
Fluoride	<1.00		1.00		mg/L			04/16/24 15:33	5
Sulfate	157		5.00		mg/L			04/16/24 15:33	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.246		0.100		mg/L		04/17/24 09:00	04/24/24 21:22	1
Calcium	168		0.500		mg/L		04/17/24 09:00	04/24/24 21:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	812		50.0		mg/L			04/15/24 18:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.9	HF	1.0		SU			04/13/24 11:10	1

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

Job ID: 310-278926-1

Client Sample ID: P-7 - CCR

Date Collected: 04/11/24 09:35
Date Received: 04/13/24 09:50

Lab Sample ID: 310-278926-6

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.8		5.00		mg/L			04/16/24 15:46	5
Fluoride	<1.00		1.00		mg/L			04/16/24 15:46	5
Sulfate	80.4		5.00		mg/L			04/16/24 15:46	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.125		0.100		mg/L		04/17/24 09:00	04/24/24 21:25	1
Calcium	178		0.500		mg/L		04/17/24 09:00	04/24/24 21:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	796		50.0		mg/L			04/15/24 18:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.9	HF	1.0		SU			04/13/24 11:11	1

Client: Waste Connections, Inc.
Job ID: 310-278926-1
Project/Site: SKB Cloquet CCR Groundwater

Client Sample ID: Equipment Blank - CCR

Lab Sample ID: 310-278926-7
Date Collected: 04/11/24 09:50
Matrix: Water
Date Received: 04/13/24 09:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/16/24 15:59	1
Fluoride	<0.200		0.200		mg/L			04/16/24 15:59	1
Sulfate	<1.00		1.00		mg/L			04/16/24 15:59	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 21:29	1
Calcium	<0.500		0.500		mg/L		04/17/24 09:00	04/24/24 21:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			04/15/24 18:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.1**	**HF**	1.0		SU			04/13/24 11:12	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: Field Blank - CCR

Lab Sample ID: 310-278926-8

Date Collected: 04/11/24 11:45

Matrix: Water

Date Received: 04/13/24 09:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/16/24 16:11	1
Fluoride	<0.200		0.200		mg/L			04/16/24 16:11	1
Sulfate	<1.00		1.00		mg/L			04/16/24 16:11	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 21:32	1
Calcium	<0.500		0.500		mg/L		04/17/24 09:00	04/24/24 21:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			04/15/24 18:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**5.8**	**HF**	1.0		SU			04/13/24 11:13	1

Client Sample Results

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

Job ID: 310-278926-1

Client Sample ID: P-5R - CCR

Lab Sample ID: 310-278926-9

Date Collected: 04/11/24 14:05

Matrix: Ground Water

Date Received: 04/13/24 09:50

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**225**		5.00		mg/L			04/16/24 16:23	5
Fluoride	<1.00		1.00		mg/L			04/16/24 16:23	5
Sulfate	**25.1**		5.00		mg/L			04/16/24 16:23	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 21:36	1
Calcium	**128**		0.500		mg/L		04/17/24 09:00	04/24/24 21:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**746**		50.0		mg/L			04/15/24 18:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.1**	**HF**	1.0		SU			04/13/24 11:14	1

Qualifiers

HPLC/IC

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.

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
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-418996/3
Matrix: Water
Analysis Batch: 418996

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/16/24 11:32	1
Fluoride	<0.200		0.200		mg/L			04/16/24 11:32	1
Sulfate	<1.00		1.00		mg/L			04/16/24 11:32	1

Lab Sample ID: LCS 310-418996/4
Matrix: Water
Analysis Batch: 418996

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.874		mg/L		99	90 - 110
Fluoride	2.00	2.100		mg/L		105	90 - 110
Sulfate	10.0	10.25		mg/L		103	90 - 110

Lab Sample ID: 310-278926-3 MS
Matrix: Ground Water
Analysis Batch: 418996

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	110		25.0	134.3	4	mg/L		98	80 - 120
Fluoride	<1.00		5.00	4.757		mg/L		95	80 - 120
Sulfate	30.9		25.0	55.88		mg/L		100	80 - 120

Lab Sample ID: 310-278926-3 MSD
Matrix: Ground Water
Analysis Batch: 418996

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	110		25.0	133.6	4	mg/L		95	80 - 120	0	15
Fluoride	<1.00		5.00	4.744		mg/L		95	80 - 120	0	15
Sulfate	30.9		25.0	55.71		mg/L		99	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-418898/1-A
Matrix: Water
Analysis Batch: 419808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/24 09:00	04/24/24 20:35	1
Calcium	<0.500		0.500		mg/L		04/17/24 09:00	04/24/24 20:35	1

Lab Sample ID: LCS 310-418898/2-A
Matrix: Water
Analysis Batch: 419808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.1979		mg/L		99	80 - 120
Calcium	2.00	1.968		mg/L		98	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-278926-3 MS
Matrix: Ground Water
Analysis Batch: 419808

Client Sample ID: P-8 - CCR
Prep Type: Total/NA
Prep Batch: 418898

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	<0.100		0.200	0.2160		mg/L		108	75 - 125
Calcium	109		2.00	104.1	4	mg/L		-226	75 - 125

Lab Sample ID: 310-278926-3 MSD
Matrix: Ground Water
Analysis Batch: 419808

Client Sample ID: P-8 - CCR
Prep Type: Total/NA
Prep Batch: 418898

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	<0.100		0.200	0.2298		mg/L		115	75 - 125	6	20
Calcium	109		2.00	111.0	4	mg/L		116	75 - 125	6	20

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

Lab Sample ID: MB 310-418793/1
Matrix: Water
Analysis Batch: 418793

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	<50.0		50.0		mg/L			04/15/24 18:46	1

Lab Sample ID: LCS 310-418793/2
Matrix: Water
Analysis Batch: 418793

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	1000	1010		mg/L		101	90 - 110

Lab Sample ID: 310-278926-3 DU
Matrix: Ground Water
Analysis Batch: 418793

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	466		484.0		mg/L		4	20

Lab Sample ID: MB 310-418795/1
Matrix: Water
Analysis Batch: 418795

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	<50.0		50.0		mg/L			04/15/24 18:54	1

Lab Sample ID: LCS 310-418795/2
Matrix: Water
Analysis Batch: 418795

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	1000	956.0		mg/L		96	90 - 110

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

Lab Sample ID: MB 310-418901/1
Matrix: Water
Analysis Batch: 418901

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	<50.0		50.0		mg/L			04/16/24 17:30	1

Lab Sample ID: LCS 310-418901/2
Matrix: Water
Analysis Batch: 418901

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			1000	968.0		mg/L		97	90 - 110		

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-418665/1
Matrix: Water
Analysis Batch: 418665

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	98 - 102		

Lab Sample ID: 310-278926-3 DU
Matrix: Ground Water
Analysis Batch: 418665

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.9	HF		7.9		SU				0.1	20

HPLC/IC

Analysis Batch: 418996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-1	Duplicate 1 - CCR	Total/NA	Ground Water	9056A	
310-278926-2	P-1 - CCR	Total/NA	Ground Water	9056A	
310-278926-3	P-8 - CCR	Total/NA	Ground Water	9056A	
310-278926-4	P-9 - CCR	Total/NA	Ground Water	9056A	
310-278926-5	P-6 - CCR	Total/NA	Ground Water	9056A	
310-278926-6	P-7 - CCR	Total/NA	Ground Water	9056A	
310-278926-7	Equipment Blank - CCR	Total/NA	Water	9056A	
310-278926-8	Field Blank - CCR	Total/NA	Water	9056A	
310-278926-9	P-5R - CCR	Total/NA	Ground Water	9056A	
MB 310-418996/3	Method Blank	Total/NA	Water	9056A	
LCS 310-418996/4	Lab Control Sample	Total/NA	Water	9056A	
310-278926-3 MS	P-8 - CCR	Total/NA	Ground Water	9056A	
310-278926-3 MSD	P-8 - CCR	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 418898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-1	Duplicate 1 - CCR	Total/NA	Ground Water	3005A	
310-278926-2	P-1 - CCR	Total/NA	Ground Water	3005A	
310-278926-3	P-8 - CCR	Total/NA	Ground Water	3005A	
310-278926-4	P-9 - CCR	Total/NA	Ground Water	3005A	
310-278926-5	P-6 - CCR	Total/NA	Ground Water	3005A	
310-278926-6	P-7 - CCR	Total/NA	Ground Water	3005A	
310-278926-7	Equipment Blank - CCR	Total/NA	Water	3005A	
310-278926-8	Field Blank - CCR	Total/NA	Water	3005A	
310-278926-9	P-5R - CCR	Total/NA	Ground Water	3005A	
MB 310-418898/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-418898/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-278926-3 MS	P-8 - CCR	Total/NA	Ground Water	3005A	
310-278926-3 MSD	P-8 - CCR	Total/NA	Ground Water	3005A	

Analysis Batch: 419808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-1	Duplicate 1 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-2	P-1 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-3	P-8 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-4	P-9 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-5	P-6 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-6	P-7 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-7	Equipment Blank - CCR	Total/NA	Water	6020B	418898
310-278926-8	Field Blank - CCR	Total/NA	Water	6020B	418898
310-278926-9	P-5R - CCR	Total/NA	Ground Water	6020B	418898
MB 310-418898/1-A	Method Blank	Total/NA	Water	6020B	418898
LCS 310-418898/2-A	Lab Control Sample	Total/NA	Water	6020B	418898
310-278926-3 MS	P-8 - CCR	Total/NA	Ground Water	6020B	418898
310-278926-3 MSD	P-8 - CCR	Total/NA	Ground Water	6020B	418898

General Chemistry

Analysis Batch: 418665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-1	Duplicate 1 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-2	P-1 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-3	P-8 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-4	P-9 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-5	P-6 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-6	P-7 - CCR	Total/NA	Ground Water	SM 4500 H+ B	
310-278926-7	Equipment Blank - CCR	Total/NA	Water	SM 4500 H+ B	
310-278926-8	Field Blank - CCR	Total/NA	Water	SM 4500 H+ B	
310-278926-9	P-5R - CCR	Total/NA	Ground Water	SM 4500 H+ B	
LCS 310-418665/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-278926-3 DU	P-8 - CCR	Total/NA	Ground Water	SM 4500 H+ B	

Analysis Batch: 418793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-3	P-8 - CCR	Total/NA	Ground Water	SM 2540C	
310-278926-4	P-9 - CCR	Total/NA	Ground Water	SM 2540C	
310-278926-5	P-6 - CCR	Total/NA	Ground Water	SM 2540C	
310-278926-6	P-7 - CCR	Total/NA	Ground Water	SM 2540C	
310-278926-7	Equipment Blank - CCR	Total/NA	Water	SM 2540C	
MB 310-418793/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-418793/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-278926-3 DU	P-8 - CCR	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 418795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-8	Field Blank - CCR	Total/NA	Water	SM 2540C	
310-278926-9	P-5R - CCR	Total/NA	Ground Water	SM 2540C	
MB 310-418795/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-418795/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 418901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278926-1	Duplicate 1 - CCR	Total/NA	Ground Water	SM 2540C	
310-278926-2	P-1 - CCR	Total/NA	Ground Water	SM 2540C	
MB 310-418901/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-418901/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 310-278926-1
Project/Site: SKB Cloquet CCR Groundwater

Client Sample ID: Duplicate 1 - CCR
Lab Sample ID: 310-278926-1
Date Collected: 04/11/24 00:00
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 13:56
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 20:41
Total/NA	Analysis	SM 2540C		1	418901	D7CP	EET CF	04/16/24 17:30
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:07

Client Sample ID: P-1 - CCR
Lab Sample ID: 310-278926-2
Date Collected: 04/11/24 09:25
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 14:08
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 20:45
Total/NA	Analysis	SM 2540C		1	418901	D7CP	EET CF	04/16/24 17:30
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:08

Client Sample ID: P-8 - CCR
Lab Sample ID: 310-278926-3
Date Collected: 04/11/24 11:10
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 14:20
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 20:48
Total/NA	Analysis	SM 2540C		1	418793	D7CP	EET CF	04/15/24 18:46
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:05

Client Sample ID: P-9 - CCR
Lab Sample ID: 310-278926-4
Date Collected: 04/11/24 13:20
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 14:57
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:18
Total/NA	Analysis	SM 2540C		1	418793	D7CP	EET CF	04/15/24 18:46
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:09

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 310-278926-1
Project/Site: SKB Cloquet CCR Groundwater

Client Sample ID: P-6 - CCR
Lab Sample ID: 310-278926-5
Date Collected: 04/11/24 09:00
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 15:33
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:22
Total/NA	Analysis	SM 2540C		1	418793	D7CP	EET CF	04/15/24 18:46
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:10

Client Sample ID: P-7 - CCR
Lab Sample ID: 310-278926-6
Date Collected: 04/11/24 09:35
Matrix: Ground Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 15:46
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:25
Total/NA	Analysis	SM 2540C		1	418793	D7CP	EET CF	04/15/24 18:46
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:11

Client Sample ID: Equipment Blank - CCR
Lab Sample ID: 310-278926-7
Date Collected: 04/11/24 09:50
Matrix: Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	418996	QTZ5	EET CF	04/16/24 15:59
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:29
Total/NA	Analysis	SM 2540C		1	418793	D7CP	EET CF	04/15/24 18:46
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:12

Client Sample ID: Field Blank - CCR
Lab Sample ID: 310-278926-8
Date Collected: 04/11/24 11:45
Matrix: Water
Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	418996	QTZ5	EET CF	04/16/24 16:11
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:32
Total/NA	Analysis	SM 2540C		1	418795	D7CP	EET CF	04/15/24 18:54
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:13

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 310-278926-1
Project/Site: SKB Cloquet CCR Groundwater

Client Sample ID: P-5R - CCR
Lab Sample ID: 310-278926-9

Date Collected: 04/11/24 14:05
Matrix: Ground Water

Date Received: 04/13/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418996	QTZ5	EET CF	04/16/24 16:23
Total/NA	Prep	3005A			418898	KM3E	EET CF	04/17/24 09:00
Total/NA	Analysis	6020B		1	419808	NFT2	EET CF	04/24/24 21:36
Total/NA	Analysis	SM 2540C		1	418795	D7CP	EET CF	04/15/24 18:54
Total/NA	Analysis	SM 4500 H+ B		1	418665	A3GU	EET CF	04/13/24 11:14

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 310-278926-1
Project/Site: SKB Cloquet CCR Groundwater

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	019-999-319	12-31-24

Method Summary

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

Job ID: 310-278926-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-278926 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: GES			
City/State: CITY		STATE MN	Project:
Receipt Information			
Date/Time Received:	DATE 4-13-24	TIME 950	Received By: MU

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler # 1 of 2
Cooler Custody Seals Present? No	☒ Yes ☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐
Sample Custody Seals Present? No	☐ Yes ☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: X	Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.1	Corrected Temp (°C): 0.1

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GES

City/State: CITY | STATE MN | Project:

Receipt Information

Date/Time Received: DATE 4-13-24 | TIME 950 | Received By: MV

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: X | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.4 | Corrected Temp (°C): 1.4

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Phone (319) 277-2425

Eurofins Minneapolis SC 213

Chain of Custody Record

Eurofins Minneapolis SC 213

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Client Information	Sampler: N-Schlagel	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-68858-19695 1
Client Contact: Mr Nicholas Schlagel	Phone: 651-792-6065	E-Mail: Zach Bindert@Eurofinset.com	State of Origin: MN	Page: Page 1 of 1
Company: Groundwater & Environmental Services Inc	PWSID:			Job #:

Address: 1301 Corporate Center Drive Suite 190	Due Date Requested:	Analysis Requested
City: Eagan	TAT Requested (days): Standard	
State, Zip: MN 55121-1562	Compliance Project: Δ Yes Δ No	
Phone:	PO #: Purchase Order Requested	
Email: NSchlagel@gesonline.com	WO #:	
Project Name: SKB Cloquet CCR Groundwater	Project #: 31013983	
Site: Minnesota	SSOW#:	

Preservation Codes.

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	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)	9056A_ORGFM_28D - Chloride, Fluoride, Sulfate	6020B - Boron and Calcium	2540C_Calcd - TDS, SM4500_H+ - pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
Duplicate 1 - CCR	4/11/24	—	6	Water			X	X	X	4	USE SITES AND EVENTS
P-1 - CCR	4/11/24	9:25	6	Water			X	X	X	4	
P-2 - CCR				Water			X	X	X	4	
P-8 - CCR	4/11/24	11:10	6	Water		Y	X	X	X	4	MS/MSD
P-9 CCR	4/11/24	13:20	6	Water			X	X	X	4	
P-6 - CCR	4/12/24	9:00	6	Water			X	X	X	4	
P-7 - CCR	4/12/24	9:35	6	Water			X	X	X	4	
Equipment Blank - CCR	4/12/24	9:50	6	Water			X	X	X	4	
Field Blank - CCR	4/11/24	11:45	6	Water			X	X	X	4	
P-5R - CCR	4/11/24	14:05	6	Water			X	X	X	4	

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: 4/12/24	Company: GES	Received by:	Date/Time: 4/12/24 1320	Company: Eurofins
Relinquished by:	Date/Time: 4/12 1700	Company: Eurofins	Received by:	Date/Time: 4-13-24 950	Company:
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:

Ver 01/16/2019

4/25/2024

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 310-278926-1

Login Number: 278926

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 310-278926-1

Login Number: 278926

List Source: Eurofins Cedar Falls

List Number: 2

Creator: Costello, Mackenzie K

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

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1 2 3 4 5 6 7 8 9 10 11 12 13 14

ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Lindstrom
Waste Connections, Inc.
13425 Courthouse Blvd
Rosemount, Minnesota 55068

Generated 11/8/2024 3:37:30 PM

JOB DESCRIPTION

SKB Cloquet CCR Groundwater (Fall)
CCR Groundwater (Fall)

JOB NUMBER

310-293245-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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Authorized for release by
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Job ID: 310-293245-1 Eurofins Cedar Falls

Job Narrative
310-293245-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/19/2024 10:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were -0.1°C and 0.3°C.

HPLC/IC
Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: Duplicate 1 - CCR (310-293245-1), P-1 - CCR (310-293245-2), P-8 - CCR (310-293245-3), P-9 - CCR (310-293245-4) and P-6 - CCR (310-293245-5). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: P-7 - CCR (310-293245-6) and P-5R - CCR (310-293245-7). 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-293245-1	Duplicate 1 - CCR	Water	10/17/24 00:00	10/19/24 10:05
310-293245-2	P-1 - CCR	Water	10/17/24 10:40	10/19/24 10:05
310-293245-3	P-8 - CCR	Water	10/17/24 12:20	10/19/24 10:05
310-293245-4	P-9 - CCR	Water	10/17/24 13:15	10/19/24 10:05
310-293245-5	P-6 - CCR	Water	10/18/24 10:40	10/19/24 10:05
310-293245-6	P-7 - CCR	Water	10/18/24 11:40	10/19/24 10:05
310-293245-7	P-5R - CCR	Water	10/18/24 09:35	10/19/24 10:05
310-293245-8	Field Blank - CCR	Water	10/18/24 12:10	10/19/24 10:05
310-293245-9	Equipment Blank - CCR	Water	10/18/24 12:00	10/19/24 10:05

Detection Summary

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Duplicate 1 - CCR
Lab Sample ID: 310-293245-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	105		5.00		mg/L	5		9056A	Total/NA
Sulfate	31.7		5.00		mg/L	5		9056A	Total/NA
Calcium	100		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	458		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-1 - CCR
Lab Sample ID: 310-293245-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	244		5.00		mg/L	5		9056A	Total/NA
Sulfate	25.2		5.00		mg/L	5		9056A	Total/NA
Calcium	148		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	684		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-8 - CCR
Lab Sample ID: 310-293245-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	102		5.00		mg/L	5		9056A	Total/NA
Sulfate	31.0		5.00		mg/L	5		9056A	Total/NA
Calcium	101		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	456		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-9 - CCR
Lab Sample ID: 310-293245-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	139		5.00		mg/L	5		9056A	Total/NA
Sulfate	25.2		5.00		mg/L	5		9056A	Total/NA
Calcium	88.2		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	536		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-6 - CCR
Lab Sample ID: 310-293245-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	52.1		5.00		mg/L	5		9056A	Total/NA
Sulfate	431		5.00		mg/L	5		9056A	Total/NA
Boron	0.205		0.100		mg/L	1		6020B	Total/NA
Calcium	222		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	1180		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: P-7 - CCR
Lab Sample ID: 310-293245-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	33.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	139		5.00		mg/L	5		9056A	Total/NA
Boron	0.185		0.100		mg/L	1		6020B	Total/NA
Calcium	167		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	822		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-5R - CCR
Lab Sample ID: 310-293245-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	276		5.00		mg/L	5		9056A	Total/NA
Sulfate	13.6		5.00		mg/L	5		9056A	Total/NA
Calcium	139		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	848		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.7	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: Field Blank - CCR
Lab Sample ID: 310-293245-8

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: Equipment Blank - CCR
Lab Sample ID: 310-293245-9

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Duplicate 1 - CCR
Lab Sample ID: 310-293245-1

Date Collected: 10/17/24 00:00
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**105**		5.00		mg/L			11/06/24 11:31	5
Fluoride	<1.00		1.00		mg/L			11/06/24 11:31	5
Sulfate	**31.7**		5.00		mg/L			11/06/24 11:31	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 15:36	1
Calcium	**100**		0.500		mg/L		10/23/24 09:30	10/31/24 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**458**		50.0		mg/L			10/22/24 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.9**	**HF**	1.0		SU			10/19/24 12:13	1

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-1 - CCR
Lab Sample ID: 310-293245-2
Date Collected: 10/17/24 10:40
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**244**		5.00		mg/L			11/06/24 11:47	5
Fluoride	<1.00		1.00		mg/L			11/06/24 11:47	5
Sulfate	**25.2**		5.00		mg/L			11/06/24 11:47	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 15:40	1
Calcium	**148**		0.500		mg/L		10/23/24 09:30	10/31/24 15:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**684**		50.0		mg/L			10/22/24 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.8**	**HF**	1.0		SU			10/19/24 12:07	1

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-8 - CCR
Lab Sample ID: 310-293245-3
Date Collected: 10/17/24 12:20
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**102**		5.00		mg/L			11/06/24 12:02	5
Fluoride	<1.00		1.00		mg/L			11/06/24 12:02	5
Sulfate	**31.0**		5.00		mg/L			11/06/24 12:02	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 15:43	1
Calcium	**101**		0.500		mg/L		10/23/24 09:30	10/31/24 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**456**		50.0		mg/L			10/22/24 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.8**	**HF**	1.0		SU			10/19/24 12:11	1

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-9 - CCR
Lab Sample ID: 310-293245-4

Date Collected: 10/17/24 13:15
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**139**		5.00		mg/L			11/06/24 13:20	5
Fluoride	<1.00		1.00		mg/L			11/06/24 13:20	5
Sulfate	**25.2**		5.00		mg/L			11/06/24 13:20	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 15:57	1
Calcium	**88.2**		0.500		mg/L		10/23/24 09:30	10/31/24 15:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**536**		50.0		mg/L			10/22/24 17:19	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.6**	**HF**	1.0		SU			10/19/24 12:08	1

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-6 - CCR
Lab Sample ID: 310-293245-5

Date Collected: 10/18/24 10:40
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.1		5.00		mg/L			11/06/24 13:36	5
Fluoride	<1.00		1.00		mg/L			11/06/24 13:36	5
Sulfate	431		5.00		mg/L			11/06/24 13:36	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.205		0.100		mg/L		10/23/24 09:30	10/31/24 16:01	1
Calcium	222		0.500		mg/L		10/23/24 09:30	10/31/24 16:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1180		50.0		mg/L			10/24/24 17:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.8	HF	1.0		SU			10/19/24 12:04	1

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-7 - CCR
Lab Sample ID: 310-293245-6
Date Collected: 10/18/24 11:40
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33.5		5.00		mg/L			11/07/24 16:47	5
Fluoride	<1.00		1.00		mg/L			11/07/24 16:47	5
Sulfate	139		5.00		mg/L			11/07/24 16:47	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.185		0.100		mg/L		10/23/24 09:30	10/31/24 16:04	1
Calcium	167		0.500		mg/L		10/23/24 09:30	10/31/24 16:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	822		50.0		mg/L			10/24/24 17:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.9	HF	1.0		SU			10/19/24 12:02	1

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: P-5R - CCR

Lab Sample ID: 310-293245-7

Date Collected: 10/18/24 09:35

Matrix: Water

Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**276**		5.00		mg/L			11/07/24 16:58	5
Fluoride	<1.00		1.00		mg/L			11/07/24 16:58	5
Sulfate	**13.6**		5.00		mg/L			11/07/24 16:58	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 16:23	1
Calcium	**139**		0.500		mg/L		10/23/24 09:30	10/31/24 16:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**848**		50.0		mg/L			10/24/24 17:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.7**	**HF**	1.0		SU			10/19/24 12:03	1

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Field Blank - CCR

Lab Sample ID: 310-293245-8
Date Collected: 10/18/24 12:10
Matrix: Water
Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			11/07/24 17:09	1
Fluoride	<0.200		0.200		mg/L			11/07/24 17:09	1
Sulfate	<1.00		1.00		mg/L			11/07/24 17:09	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 16:26	1
Calcium	<0.500		0.500		mg/L		10/23/24 09:30	10/31/24 16:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			10/24/24 17:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.2**	**HF**	1.0		SU			10/19/24 12:10	1

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Equipment Blank - CCR

Lab Sample ID: 310-293245-9

Date Collected: 10/18/24 12:00

Matrix: Water

Date Received: 10/19/24 10:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			11/07/24 17:20	1
Fluoride	<0.200		0.200		mg/L			11/07/24 17:20	1
Sulfate	<1.00		1.00		mg/L			11/07/24 17:20	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 16:30	1
Calcium	<0.500		0.500		mg/L		10/23/24 09:30	10/31/24 16:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			10/24/24 17:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**5.2**	**HF**	1.0		SU			10/19/24 12:01	1

Definitions/Glossary

Client: Waste Connections, Inc. Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Qualifiers

HPLC/IC

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.

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
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-439046/3
Matrix: Water
Analysis Batch: 439046

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			11/06/24 11:00	1
Fluoride	<0.200		0.200		mg/L			11/06/24 11:00	1
Sulfate	<1.00		1.00		mg/L			11/06/24 11:00	1

Lab Sample ID: LCS 310-439046/4
Matrix: Water
Analysis Batch: 439046

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.066		mg/L		91	90 - 110
Fluoride	2.00	1.925		mg/L		96	90 - 110
Sulfate	10.0	9.627		mg/L		96	90 - 110

Lab Sample ID: 310-293245-3 MS
Matrix: Water
Analysis Batch: 439046

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	102		25.0	126.3	4	mg/L		95	80 - 120
Fluoride	<1.00		5.00	4.793		mg/L		96	80 - 120
Sulfate	31.0		25.0	55.31		mg/L		97	80 - 120

Lab Sample ID: 310-293245-3 MSD
Matrix: Water
Analysis Batch: 439046

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	102		25.0	126.7	4	mg/L		97	80 - 120	0	15
Fluoride	<1.00		5.00	4.849		mg/L		97	80 - 120	1	15
Sulfate	31.0		25.0	55.87		mg/L		100	80 - 120	1	15

Lab Sample ID: MB 310-439157/3
Matrix: Water
Analysis Batch: 439157

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			11/07/24 16:24	1
Fluoride	<0.200		0.200		mg/L			11/07/24 16:24	1
Sulfate	<1.00		1.00		mg/L			11/07/24 16:24	1

Lab Sample ID: LCS 310-439157/4
Matrix: Water
Analysis Batch: 439157

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.334		mg/L		93	90 - 110
Fluoride	2.00	2.003		mg/L		100	90 - 110
Sulfate	10.0	9.165		mg/L		92	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-437140/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 438328
Prep Batch: 437140

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/23/24 09:30	10/31/24 15:04	1
Calcium	<0.500		0.500		mg/L		10/23/24 09:30	10/31/24 15:04	1

Lab Sample ID: LCS 310-437140/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 438328
Prep Batch: 437140

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.1974		mg/L		99	80 - 120
Calcium	2.00	1.963		mg/L		98	80 - 120

Lab Sample ID: 310-293245-3 MS
Client Sample ID: P-8 - CCR
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 438328
Prep Batch: 437140

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	<0.100		0.200	0.2159		mg/L		108	75 - 125
Calcium	101		2.00	99.89	4	mg/L		-65	75 - 125

Lab Sample ID: 310-293245-3 MSD
Client Sample ID: P-8 - CCR
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 438328
Prep Batch: 437140

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	<0.100		0.200	0.2404		mg/L		120	75 - 125	11	20
Calcium	101		2.00	104.9	4	mg/L		184	75 - 125	5	20

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

Lab Sample ID: MB 310-437143/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 437143

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			10/22/24 17:19	1

Lab Sample ID: LCS 310-437143/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 437143

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1008		mg/L		101	88 - 110

Lab Sample ID: MB 310-437489/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 437489

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			10/24/24 17:10	1

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

Lab Sample ID: LCS 310-437489/2
Matrix: Water
Analysis Batch: 437489

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	1000	992.0		mg/L		99	88 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-436850/1
Matrix: Water
Analysis Batch: 436850

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	98 - 102

Lab Sample ID: 310-293245-3 DU
Matrix: Water
Analysis Batch: 436850

Client Sample ID: P-8 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.8	HF	7.9		SU		0.9	20

Lab Sample ID: 310-293245-4 DU
Matrix: Water
Analysis Batch: 436850

Client Sample ID: P-9 - CCR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.6	HF	7.6		SU		0.1	20

HPLC/IC

Analysis Batch: 439046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-1	Duplicate 1 - CCR	Total/NA	Water	9056A	
310-293245-2	P-1 - CCR	Total/NA	Water	9056A	
310-293245-3	P-8 - CCR	Total/NA	Water	9056A	
310-293245-4	P-9 - CCR	Total/NA	Water	9056A	
310-293245-5	P-6 - CCR	Total/NA	Water	9056A	
MB 310-439046/3	Method Blank	Total/NA	Water	9056A	
LCS 310-439046/4	Lab Control Sample	Total/NA	Water	9056A	
310-293245-3 MS	P-8 - CCR	Total/NA	Water	9056A	
310-293245-3 MSD	P-8 - CCR	Total/NA	Water	9056A	

Analysis Batch: 439157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-6	P-7 - CCR	Total/NA	Water	9056A	
310-293245-7	P-5R - CCR	Total/NA	Water	9056A	
310-293245-8	Field Blank - CCR	Total/NA	Water	9056A	
310-293245-9	Equipment Blank - CCR	Total/NA	Water	9056A	
MB 310-439157/3	Method Blank	Total/NA	Water	9056A	
LCS 310-439157/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 437140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-1	Duplicate 1 - CCR	Total/NA	Water	3005A	
310-293245-2	P-1 - CCR	Total/NA	Water	3005A	
310-293245-3	P-8 - CCR	Total/NA	Water	3005A	
310-293245-4	P-9 - CCR	Total/NA	Water	3005A	
310-293245-5	P-6 - CCR	Total/NA	Water	3005A	
310-293245-6	P-7 - CCR	Total/NA	Water	3005A	
310-293245-7	P-5R - CCR	Total/NA	Water	3005A	
310-293245-8	Field Blank - CCR	Total/NA	Water	3005A	
310-293245-9	Equipment Blank - CCR	Total/NA	Water	3005A	
MB 310-437140/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-437140/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-293245-3 MS	P-8 - CCR	Total/NA	Water	3005A	
310-293245-3 MSD	P-8 - CCR	Total/NA	Water	3005A	

Analysis Batch: 438328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-1	Duplicate 1 - CCR	Total/NA	Water	6020B	437140
310-293245-2	P-1 - CCR	Total/NA	Water	6020B	437140
310-293245-3	P-8 - CCR	Total/NA	Water	6020B	437140
310-293245-4	P-9 - CCR	Total/NA	Water	6020B	437140
310-293245-5	P-6 - CCR	Total/NA	Water	6020B	437140
310-293245-6	P-7 - CCR	Total/NA	Water	6020B	437140
310-293245-7	P-5R - CCR	Total/NA	Water	6020B	437140
310-293245-8	Field Blank - CCR	Total/NA	Water	6020B	437140
310-293245-9	Equipment Blank - CCR	Total/NA	Water	6020B	437140
MB 310-437140/1-A	Method Blank	Total/NA	Water	6020B	437140
LCS 310-437140/2-A	Lab Control Sample	Total/NA	Water	6020B	437140
310-293245-3 MS	P-8 - CCR	Total/NA	Water	6020B	437140

Metals (Continued)

Analysis Batch: 438328 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-3 MSD	P-8 - CCR	Total/NA	Water	6020B	437140

General Chemistry

Analysis Batch: 436850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-1	Duplicate 1 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-2	P-1 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-3	P-8 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-4	P-9 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-5	P-6 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-6	P-7 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-7	P-5R - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-8	Field Blank - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-9	Equipment Blank - CCR	Total/NA	Water	SM 4500 H+ B	
LCS 310-436850/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-293245-3 DU	P-8 - CCR	Total/NA	Water	SM 4500 H+ B	
310-293245-4 DU	P-9 - CCR	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 437143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-1	Duplicate 1 - CCR	Total/NA	Water	SM 2540C	
310-293245-2	P-1 - CCR	Total/NA	Water	SM 2540C	
310-293245-3	P-8 - CCR	Total/NA	Water	SM 2540C	
310-293245-4	P-9 - CCR	Total/NA	Water	SM 2540C	
MB 310-437143/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-437143/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 437489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293245-5	P-6 - CCR	Total/NA	Water	SM 2540C	
310-293245-6	P-7 - CCR	Total/NA	Water	SM 2540C	
310-293245-7	P-5R - CCR	Total/NA	Water	SM 2540C	
310-293245-8	Field Blank - CCR	Total/NA	Water	SM 2540C	
310-293245-9	Equipment Blank - CCR	Total/NA	Water	SM 2540C	
MB 310-437489/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-437489/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Duplicate 1 - CCR
Lab Sample ID: 310-293245-1
Date Collected: 10/17/24 00:00
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439046	WZC8	EET CF	11/06/24 11:31
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 15:36
Total/NA	Analysis	SM 2540C		1	437143	MDU9	EET CF	10/22/24 17:19
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:13

Client Sample ID: P-1 - CCR
Lab Sample ID: 310-293245-2
Date Collected: 10/17/24 10:40
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439046	WZC8	EET CF	11/06/24 11:47
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 15:40
Total/NA	Analysis	SM 2540C		1	437143	MDU9	EET CF	10/22/24 17:19
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:07

Client Sample ID: P-8 - CCR
Lab Sample ID: 310-293245-3
Date Collected: 10/17/24 12:20
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439046	WZC8	EET CF	11/06/24 12:02
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 15:43
Total/NA	Analysis	SM 2540C		1	437143	MDU9	EET CF	10/22/24 17:19
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:11

Client Sample ID: P-9 - CCR
Lab Sample ID: 310-293245-4
Date Collected: 10/17/24 13:15
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439046	WZC8	EET CF	11/06/24 13:20
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 15:57
Total/NA	Analysis	SM 2540C		1	437143	MDU9	EET CF	10/22/24 17:19
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:08

Client Sample ID: P-6 - CCR
Lab Sample ID: 310-293245-5

Date Collected: 10/18/24 10:40
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439046	WZC8	EET CF	11/06/24 13:36
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 16:01
Total/NA	Analysis	SM 2540C		1	437489	MDU9	EET CF	10/24/24 17:10
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:04

Client Sample ID: P-7 - CCR
Lab Sample ID: 310-293245-6

Date Collected: 10/18/24 11:40
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439157	WZC8	EET CF	11/07/24 16:47
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 16:04
Total/NA	Analysis	SM 2540C		1	437489	MDU9	EET CF	10/24/24 17:10
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:02

Client Sample ID: P-5R - CCR
Lab Sample ID: 310-293245-7

Date Collected: 10/18/24 09:35
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	439157	WZC8	EET CF	11/07/24 16:58
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 16:23
Total/NA	Analysis	SM 2540C		1	437489	MDU9	EET CF	10/24/24 17:10
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:03

Client Sample ID: Field Blank - CCR
Lab Sample ID: 310-293245-8

Date Collected: 10/18/24 12:10
Matrix: Water
Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	439157	WZC8	EET CF	11/07/24 17:09
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 16:26
Total/NA	Analysis	SM 2540C		1	437489	MDU9	EET CF	10/24/24 17:10
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:10

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Client Sample ID: Equipment Blank - CCR
Lab Sample ID: 310-293245-9

Date Collected: 10/18/24 12:00
Matrix: Water

Date Received: 10/19/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	439157	WZC8	EET CF	11/07/24 17:20
Total/NA	Prep	3005A			437140	F5MW	EET CF	10/23/24 09:30
Total/NA	Analysis	6020B		1	438328	NFT2	EET CF	10/31/24 16:30
Total/NA	Analysis	SM 2540C		1	437489	MDU9	EET CF	10/24/24 17:10
Total/NA	Analysis	SM 4500 H+ B		1	436850	A3GU	EET CF	10/19/24 12:01

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Waste Connections, Inc. Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	019-999-319	12-31-25

Method Summary

Client: Waste Connections, Inc.
Job ID: 310-293245-1
Project/Site: SKB Cloquet CCR Groundwater (Fall)

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-293245 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GES

City/State: CITY Eagan STATE MN Project:

Receipt Information

Date/Time Received: DATE 10/14/24 TIME 1005 Received By: PH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: R Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): -0.1 Corrected Temp (°C): -0.1

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☑ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GES

City/State: CITY Eagan STATE MN Project:

Receipt Information

Date/Time Received: DATE 10/14/24 TIME 1005 Received By: PH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: R Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.3 Corrected Temp (°C): 0.3

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Phone (319) 277-2425

Eurofins Minneapolis SC
213

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: N. Schlagel	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-73819-21058.1
Client Contact: Mr Nicholas Schlagel	Phone: 651-792-6068	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: MN	Page: Page 1 of 2
Company: Groundwater & Environmental Services Inc	PWSID:			Job #:

Address: 1301 Corporate Center Drive Suite 190	Due Date Requested:	Analysis Requested
City: Eagan	TAT Requested (days): Standard	
State, Zip: MN, 55121-1562	Compliance Project: Δ Yes Δ No	
Phone:	PO #: Purchase Order Requested	
Email: NSchlagel@gesonline.com	WO #:	
Project Name: SKB Cloquet CCR Groundwater (Fall)	Project #: 31013983	
Site: Minnesota	SSOW#:	

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, Y - Trizma, 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)	Chloride, Fluoride and Sulfate - 9056A_ORGFM_28D	6020B - Boron and Calcium	TDS - 2540C_Calcd, pH - SM4500_H+	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
Duplicate 1 - CCR	10/17/24	—	6	Water			X	X	X	3	
P-1 - CCR	10/17/24	10:40	6	Water			X	X	X	3	
~~P-2 - CCR~~				Water			X	X	X	3	
P-8 - CCR	10/17/24	12:20	6	Water			X	X	X	3	
P-9 - CCR	10/17/24	13:15	6	Water			X	X	X	3	
P-6 - CCR	10/9/24	10:40	6	Water			X	X	X	3	
P-7 - CCR	10/9/24	11:40	6	Water			X	X	X	3	
P-5R - CCR	10/8/24	9:35	6	Water			X	X	X	3	
Field Blank - CCR	10/8/24	12:10	6	Water			X	X	X	3	
Equipment Blank - CCR	10/8/24	12:00	6	Water			X	X	X	3	
				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: 10/18/24 14:00	Company: GES	Received by:	Date/Time: 10-18 1450	Company: Eurofins
Relinquished by:	Date/Time: 10-18 1700	Company: Eurofins	Received by:	Date/Time: 10/19/24 1005	Company
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:

Ver 01/16/2019

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 310-293245-1

Login Number: 293245

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Hirsch, Preston

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
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	

Appendix C – Statistical Evaluation Data

1				**Background Statistics for Uncensored Full Data Sets**								
2			**User Selected Options**									
3			Date/Time of Computation	ProUCL 5.11/18/2024 12:37:31 AM								
4			From File	\\GES.NET\dw05\Minnesota\Projects\SKB Environmental\Cloquet Facility\Statistics\2023 Annual CCR Statistics								
5			Full Precision	OFF								
6			Confidence Coefficient	95%								
7			Coverage	95%								
8			New or Future K Observations	1								
9			Number of Bootstrap Operations	2000								
10												
11	**Boron**											
12												
13	**General Statistics**											
14						Total Number of Observations	156			Number of Distinct Observations	66		
15										Number of Missing Observations	1		
16						Minimum	0.02			First Quartile	0.044		
17						Second Largest	0.39			Median	0.0815		
18						Maximum	0.41			Third Quartile	0.12		
19						Mean	0.108			SD	0.0916		
20						Coefficient of Variation	0.847			Skewness	1.698		
21						Mean of logged Data	-2.509			SD of logged Data	0.733		
22													
23						**Critical Values for Background Threshold Values (BTVs)**							
24						Tolerance Factor K (For UTL)	1.863			d2max (for USL)	3.355		
25													
26						**Normal GOF Test**							
27						Shapiro Wilk Test Statistic	0.76			**Normal GOF Test**			
28						5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level			
29						Lilliefors Test Statistic	0.216			**Lilliefors GOF Test**			
30						5% Lilliefors Critical Value	0.0713			Data Not Normal at 5% Significance Level			
31						**Data Not Normal at 5% Significance Level**							
32													
33						**Background Statistics Assuming Normal Distribution**							
34						95% UTL with 95% Coverage	0.279			90% Percentile (z)	0.225		
35						95% UPL (t)	0.26			95% Percentile (z)	0.259		
36						95% USL	0.415			99% Percentile (z)	0.321		
37													
38						**Gamma GOF Test**							
39						A-D Test Statistic	4.505			**Anderson-Darling Gamma GOF Test**			
40						5% A-D Critical Value	0.767			Data Not Gamma Distributed at 5% Significance Level			
41						K-S Test Statistic	0.123			**Kolmogorov-Smirnov Gamma GOF Test**			
42						5% K-S Critical Value	0.0761			Data Not Gamma Distributed at 5% Significance Level			
43						**Data Not Gamma Distributed at 5% Significance Level**							
44													
45						**Gamma Statistics**							
46						k hat (MLE)	1.909			k star (bias corrected MLE)	1.877		
47						Theta hat (MLE)	0.0566			Theta star (bias corrected MLE)	0.0576		
48						nu hat (MLE)	595.6			nu star (bias corrected)	585.5		
49						MLE Mean (bias corrected)	0.108			MLE Sd (bias corrected)	0.0789		
50													
51						**Background Statistics Assuming Gamma Distribution**							
52						95% Wilson Hilferty (WH) Approx. Gamma UPL	0.259			90% Percentile	0.213		

53	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.261					95% Percentile	0.262
54	95% WH Approx. Gamma UTL with 95% Coverage					0.289					99% Percentile	0.369
55	95% HW Approx. Gamma UTL with 95% Coverage					0.294						
56					95% WH USL	0.577					95% HW USL	0.629
57												
58	**Lognormal GOF Test**											
59					Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**					
60					5% Shapiro Wilk P Value	1.5616E-7	Data Not Lognormal at 5% Significance Level					
61					Lilliefors Test Statistic	0.0971	**Lilliefors Lognormal GOF Test**					
62					5% Lilliefors Critical Value	0.0713	Data Not Lognormal at 5% Significance Level					
63	**Data Not Lognormal at 5% Significance Level**											
64												
65	**Background Statistics assuming Lognormal Distribution**											
66					95% UTL with 95% Coverage	0.319					90% Percentile (z)	0.208
67					95% UPL (t)	0.274					95% Percentile (z)	0.271
68					95% USL	0.95					99% Percentile (z)	0.447
69												
70	**Nonparametric Distribution Free Background Statistics**											
71	**Data do not follow a Discernible Distribution (0.05)**											
72												
73	**Nonparametric Upper Limits for Background Threshold Values**											
74					Order of Statistic, r	152					95% UTL with 95% Coverage	0.37
75					Approx, f used to compute achieved CC	1.6					Approximate Actual Confidence Coefficient achieved by UTL	0.894
76											Approximate Sample Size needed to achieve specified CC	181
77	95% Percentile Bootstrap UTL with 95% Coverage					0.37					95% BCA Bootstrap UTL with 95% Coverage	0.37
78					95% UPL	0.335					90% Percentile	0.275
79					90% Chebyshev UPL	0.384					95% Percentile	0.315
80					95% Chebyshev UPL	0.509					99% Percentile	0.385
81					95% USL	0.41						
82												
83	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
84	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
85	and consists of observations collected from clean unimpacted locations.											
86	The use of USL tends to provide a balance between false positives and false negatives provided the data											
87	represents a background data set and when many onsite observations need to be compared with the BTV.											
88												
89	**Calcium**											
90												
91	**General Statistics**											
92					Total Number of Observations	146					Number of Distinct Observations	90
93											Number of Missing Observations	3
94					Minimum	27					First Quartile	113.5
95					Second Largest	207					Median	139
96					Maximum	235					Third Quartile	160
97					Mean	135.3					SD	33.57
98					Coefficient of Variation	0.248					Skewness	-0.46
99					Mean of logged Data	4.868					SD of logged Data	0.304
100												
101	**Critical Values for Background Threshold Values (BTVs)**											
102					Tolerance Factor K (For UTL)	1.871					d2max (for USL)	3.334
103												
104	**Normal GOF Test**											

105				Shapiro Wilk Test Statistic	0.975	**Normal GOF Test**						
106				5% Shapiro Wilk P Value	0.176	Data appear Normal at 5% Significance Level						
107				Lilliefors Test Statistic	0.0786	**Lilliefors GOF Test**						
108				5% Lilliefors Critical Value	0.0737	Data Not Normal at 5% Significance Level						
109	**Data appear Approximate Normal at 5% Significance Level**											
110												
111	**Background Statistics Assuming Normal Distribution**											
112			95% UTL with	95% Coverage	198.1					90% Percentile (z)	178.3	
113				95% UPL (t)	191					95% Percentile (z)	190.5	
114				95% USL	247.2					99% Percentile (z)	213.4	
115												
116	**Gamma GOF Test**											
117				A-D Test Statistic	2.818	**Anderson-Darling Gamma GOF Test**						
118				5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level						
119				K-S Test Statistic	0.11	**Kolmogorov-Smirnov Gamma GOF Test**						
120				5% K-S Critical Value	0.0775	Data Not Gamma Distributed at 5% Significance Level						
121	**Data Not Gamma Distributed at 5% Significance Level**											
122												
123	**Gamma Statistics**											
124				k hat (MLE)	13.05					k star (bias corrected MLE)	12.78	
125				Theta hat (MLE)	10.37					Theta star (bias corrected MLE)	10.58	
126				nu hat (MLE)	3810					nu star (bias corrected)	3733	
127				MLE Mean (bias corrected)	135.3					MLE Sd (bias corrected)	37.83	
128												
129	**Background Statistics Assuming Gamma Distribution**											
130			95% Wilson Hilferty (WH) Approx. Gamma UPL		203.1					90% Percentile	185.4	
131			95% Hawkins Wixley (HW) Approx. Gamma UPL		205.6					95% Percentile	202.9	
132			95% WH Approx. Gamma UTL with	95% Coverage	213.6					99% Percentile	238.4	
133			95% HW Approx. Gamma UTL with	95% Coverage	216.8							
134				95% WH USL	296.8					95% HW USL	308.1	
135												
136	**Lognormal GOF Test**											
137				Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk Lognormal GOF Test**						
138				5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level						
139				Lilliefors Test Statistic	0.12	**Lilliefors Lognormal GOF Test**						
140				5% Lilliefors Critical Value	0.0737	Data Not Lognormal at 5% Significance Level						
141	**Data Not Lognormal at 5% Significance Level**											
142												
143	**Background Statistics assuming Lognormal Distribution**											
144			95% UTL with	95% Coverage	229.6					90% Percentile (z)	192	
145				95% UPL (t)	215.5					95% Percentile (z)	214.4	
146				95% USL	358.1					99% Percentile (z)	263.7	
147												
148	**Nonparametric Distribution Free Background Statistics**											
149	**Data appear Approximate Normal at 5% Significance Level**											
150												
151	**Nonparametric Upper Limits for Background Threshold Values**											
152				Order of Statistic, r	142					95% UTL with	95% Coverage	185
153			Approx, f used to compute achieved CC		1.495					Approximate Actual Confidence Coefficient achieved by UTL		0.859
154										Approximate Sample Size needed to achieve specified CC		181
155			95% Percentile Bootstrap UTL with	95% Coverage	186					95% BCA Bootstrap UTL with	95% Coverage	185.5
156				95% UPL	182.3					90% Percentile		170.5

157				90% Chebyshev UPL	236.3					95% Percentile	180	
158				95% Chebyshev UPL	282.1					99% Percentile	200.7	
159				95% USL	235							
160												
161	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
162	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
163	and consists of observations collected from clean unimpacted locations.											
164	The use of USL tends to provide a balance between false positives and false negatives provided the data											
165	represents a background data set and when many onsite observations need to be compared with the BTV.											
166												
167	chloride											
168												
169	General Statistics											
170				Total Number of Observations	139					Number of Distinct Observations	113	
171										Number of Missing Observations	24	
172				Minimum	4					First Quartile	64.05	
173				Second Largest	232					Median	97.3	
174				Maximum	240					Third Quartile	140	
175				Mean	108.3					SD	56.87	
176				Coefficient of Variation	0.525					Skewness	0.655	
177				Mean of logged Data	4.523					SD of logged Data	0.635	
178												
179	Critical Values for Background Threshold Values (BTVs)											
180				Tolerance Factor K (For UTL)	1.877					d2max (for USL)	3.319	
181												
182	Normal GOF Test											
183				Shapiro Wilk Test Statistic	0.925					Normal GOF Test		
184				5% Shapiro Wilk P Value	9.3519E-9					Data Not Normal at 5% Significance Level		
185				Lilliefors Test Statistic	0.114					Lilliefors GOF Test		
186				5% Lilliefors Critical Value	0.0755					Data Not Normal at 5% Significance Level		
187	Data Not Normal at 5% Significance Level											
188												
189	Background Statistics Assuming Normal Distribution											
190				95% UTL with 95% Coverage	215.1					90% Percentile (z)	181.2	
191				95% UPL (t)	202.8					95% Percentile (z)	201.9	
192				95% USL	297.1					99% Percentile (z)	240.6	
193												
194	Gamma GOF Test											
195				A-D Test Statistic	0.489					Anderson-Darling Gamma GOF Test		
196				5% A-D Critical Value	0.759					Detected data appear Gamma Distributed at 5% Significance Level		
197				K-S Test Statistic	0.0423					Kolmogorov-Smirnov Gamma GOF Test		
198				5% K-S Critical Value	0.0799					Detected data appear Gamma Distributed at 5% Significance Level		
199	Detected data appear Gamma Distributed at 5% Significance Level											
200												
201	Gamma Statistics											
202				k hat (MLE)	3.239					k star (bias corrected MLE)	3.174	
203				Theta hat (MLE)	33.44					Theta star (bias corrected MLE)	34.13	
204				nu hat (MLE)	900.5					nu star (bias corrected)	882.4	
205				MLE Mean (bias corrected)	108.3					MLE Sd (bias corrected)	60.8	
206												
207	Background Statistics Assuming Gamma Distribution											
208				95% Wilson Hilferty (WH) Approx. Gamma UPL	223.6					90% Percentile	189.8	

209				95% Hawkins Wixley (HW) Approx. Gamma UPL		230					95% Percentile	223.7
210				95% WH Approx. Gamma UTL with 95% Coverage		245.2					99% Percentile	296.8
211				95% HW Approx. Gamma UTL with 95% Coverage		254.2						
212					95% WH USL	426.3					95% HW USL	468.3
213												
214						**Lognormal GOF Test**						
215					Shapiro Wilk Test Statistic	0.917						
216					5% Shapiro Wilk P Value	3.449E-10						
217					Lilliefors Test Statistic	0.068						
218					5% Lilliefors Critical Value	0.0755						
219						**Data appear Approximate Lognormal at 5% Significance Level**						
220												
221						**Background Statistics assuming Lognormal Distribution**						
222					95% UTL with 95% Coverage	303.3					90% Percentile (z)	207.8
223					95% UPL (t)	264.6					95% Percentile (z)	261.7
224					95% USL	757.5					99% Percentile (z)	403.4
225												
226						**Nonparametric Distribution Free Background Statistics**						
227						**Data appear Gamma Distributed at 5% Significance Level**						
228												
229						**Nonparametric Upper Limits for Background Threshold Values**						
230					Order of Statistic, r	136					95% UTL with 95% Coverage	229
231					Approx, f used to compute achieved CC	1.789					Approximate Actual Confidence Coefficient achieved by UTL	0.921
232											Approximate Sample Size needed to achieve specified CC	153
233				95% Percentile Bootstrap UTL with 95% Coverage		227.2					95% BCA Bootstrap UTL with 95% Coverage	227
234					95% UPL	223					90% Percentile	202.2
235					90% Chebyshev UPL	279.5					95% Percentile	220.3
236					95% Chebyshev UPL	357.1					99% Percentile	232
237					95% USL	240						
238												
239						Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.						
240						Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers						
241						and consists of observations collected from clean unimpacted locations.						
242						The use of USL tends to provide a balance between false positives and false negatives provided the data						
243						represents a background data set and when many onsite observations need to be compared with the BTV.						
244												
245	**fluoride**											
246												
247	**General Statistics**											
248					Total Number of Observations	131					Number of Distinct Observations	10
249											Number of Missing Observations	18
250					Minimum	0.05					First Quartile	0.25
251					Second Largest	0.5					Median	0.25
252					Maximum	0.5					Third Quartile	0.375
253					Mean	0.29					SD	0.133
254					Coefficient of Variation	0.46					Skewness	0.508
255					Mean of logged Data	-1.361					SD of logged Data	0.537
256												
257						**Critical Values for Background Threshold Values (BTVs)**						
258					Tolerance Factor K (For UTL)	1.885					d2max (for USL)	3.299
259												
260						**Normal GOF Test**						

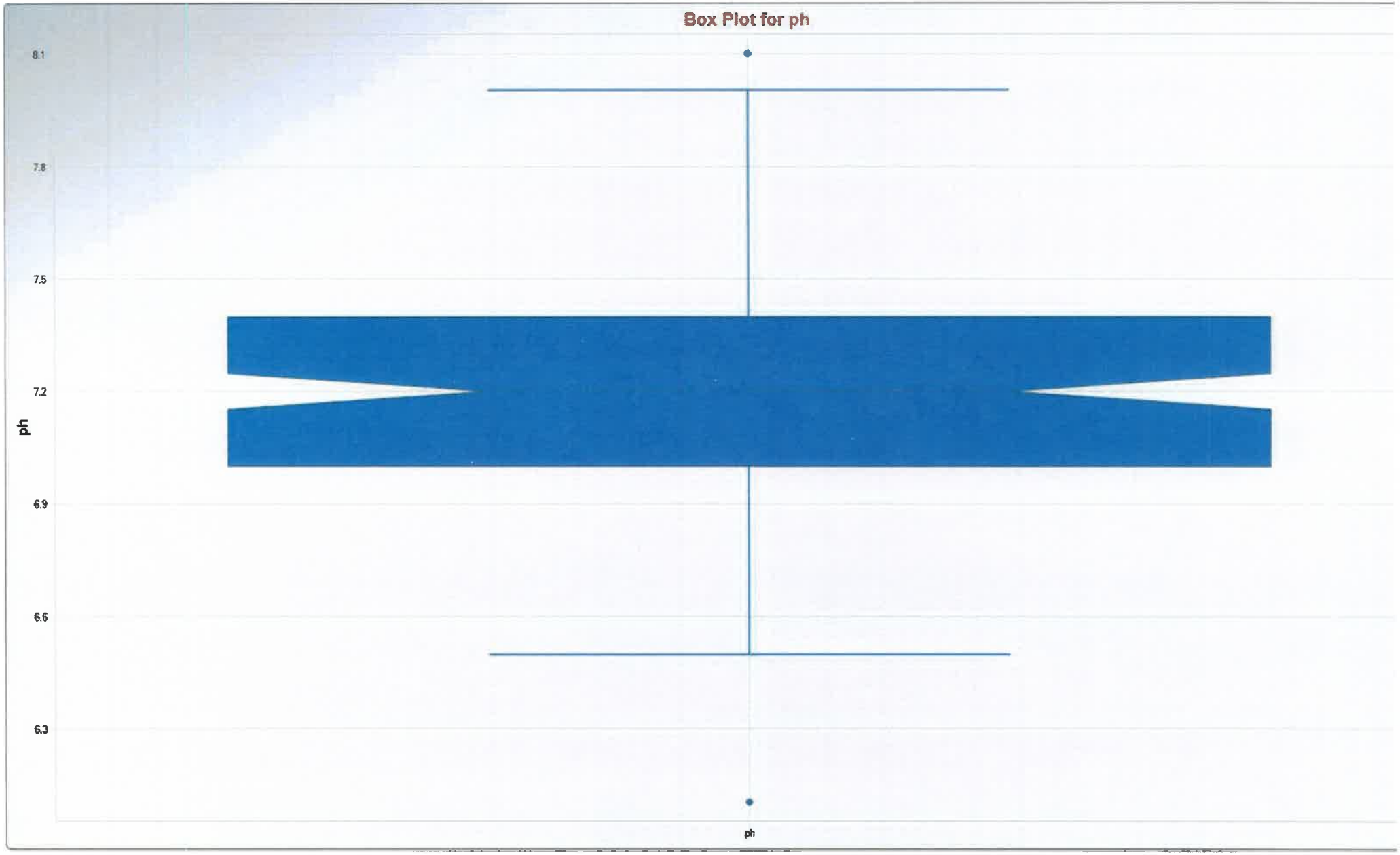
	A	B	C	D	E	F	G	H	I	J	K	L
261					Shapiro Wilk Test Statistic	0.761	**Normal GOF Test**					
262					5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level					
263					Lilliefors Test Statistic	0.365	**Lilliefors GOF Test**					
264					5% Lilliefors Critical Value	0.0778	Data Not Normal at 5% Significance Level					
265	**Data Not Normal at 5% Significance Level**											
266												
267	**Background Statistics Assuming Normal Distribution**											
268				95% UTL with	95% Coverage	0.541				90% Percentile (z)		0.461
269					95% UPL (t)	0.512				95% Percentile (z)		0.509
270					95% USL	0.73				99% Percentile (z)		0.6
271												
272	**Gamma GOF Test**											
273					A-D Test Statistic	11.97	**Anderson-Darling Gamma GOF Test**					
274					5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level					
275					K-S Test Statistic	0.301	**Kolmogorov-Smirnov Gamma GOF Test**					
276					5% K-S Critical Value	0.0817	Data Not Gamma Distributed at 5% Significance Level					
277	**Data Not Gamma Distributed at 5% Significance Level**											
278												
279	**Gamma Statistics**											
280					k hat (MLE)	4.228				k star (bias corrected MLE)		4.136
281					Theta hat (MLE)	0.0686				Theta star (bias corrected MLE)		0.0701
282					nu hat (MLE)	1108				nu star (bias corrected)		1084
283					MLE Mean (bias corrected)	0.29				MLE Sd (bias corrected)		0.143
284												
285	**Background Statistics Assuming Gamma Distribution**											
286			95% Wilson Hilferty (WH) Approx. Gamma UPL			0.558				90% Percentile		0.481
287			95% Hawkins Wixley (HW) Approx. Gamma UPL			0.57				95% Percentile		0.557
288			95% WH Approx. Gamma UTL with	95% Coverage		0.608				99% Percentile		0.719
289			95% HW Approx. Gamma UTL with	95% Coverage		0.625						
290					95% WH USL	0.997				95% HW USL		1.074
291												
292	**Lognormal GOF Test**											
293					Shapiro Wilk Test Statistic	0.778	**Shapiro Wilk Lognormal GOF Test**					
294					5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level					
295					Lilliefors Test Statistic	0.298	**Lilliefors Lognormal GOF Test**					
296					5% Lilliefors Critical Value	0.0778	Data Not Lognormal at 5% Significance Level					
297	**Data Not Lognormal at 5% Significance Level**											
298												
299	**Background Statistics assuming Lognormal Distribution**											
300				95% UTL with	95% Coverage	0.705				90% Percentile (z)		0.51
301					95% UPL (t)	0.626				95% Percentile (z)		0.62
302					95% USL	1.508				99% Percentile (z)		0.894
303												
304	**Nonparametric Distribution Free Background Statistics**											
305	**Data do not follow a Discernible Distribution (0.05)**											
306												
307	**Nonparametric Upper Limits for Background Threshold Values**											
308					Order of Statistic, r	128				95% UTL with	95% Coverage	0.5
309				Approx, f used to compute achieved CC		1.684				Approximate Actual Confidence Coefficient achieved by UTL		0.898
310										Approximate Sample Size needed to achieve specified CC		153
311			95% Percentile Bootstrap UTL with	95% Coverage		0.5				95% BCA Bootstrap UTL with	95% Coverage	0.5
312					95% UPL	0.5				90% Percentile		0.5

313				90% Chebyshev UPL	0.692					95% Percentile	0.5	
314				95% Chebyshev UPL	0.874					99% Percentile	0.5	
315				95% USL	0.5							
316												
317	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
318	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
319	and consists of observations collected from clean unimpacted locations.											
320	The use of USL tends to provide a balance between false positives and false negatives provided the data											
321	represents a background data set and when many onsite observations need to be compared with the BTV.											
322												
323	**sulfate**											
324												
325	**General Statistics**											
326				Total Number of Observations	147					Number of Distinct Observations	126	
327				Minimum	5					First Quartile	29.45	
328				Second Largest	160					Median	42.5	
329				Maximum	161					Third Quartile	64.95	
330				Mean	53.63					SD	35.67	
331				Coefficient of Variation	0.665					Skewness	1.354	
332				Mean of logged Data	3.78					SD of logged Data	0.653	
333												
334	**Critical Values for Background Threshold Values (BTVs)**											
335				Tolerance Factor K (For UTL)	1.87					d2max (for USL)	3.336	
336												
337	**Normal GOF Test**											
338				Shapiro Wilk Test Statistic	0.837					**Normal GOF Test**		
339				5% Shapiro Wilk P Value	0					Data Not Normal at 5% Significance Level		
340				Lilliefors Test Statistic	0.18					**Lilliefors GOF Test**		
341				5% Lilliefors Critical Value	0.0735					Data Not Normal at 5% Significance Level		
342	**Data Not Normal at 5% Significance Level**											
343												
344	**Background Statistics Assuming Normal Distribution**											
345				95% UTL with 95% Coverage	120.4					90% Percentile (z)	99.35	
346				95% UPL (t)	112.9					95% Percentile (z)	112.3	
347				95% USL	172.7					99% Percentile (z)	136.6	
348												
349	**Gamma GOF Test**											
350				A-D Test Statistic	2.089					**Anderson-Darling Gamma GOF Test**		
351				5% A-D Critical Value	0.762					Data Not Gamma Distributed at 5% Significance Level		
352				K-S Test Statistic	0.1					**Kolmogorov-Smirnov Gamma GOF Test**		
353				5% K-S Critical Value	0.078					Data Not Gamma Distributed at 5% Significance Level		
354	**Data Not Gamma Distributed at 5% Significance Level**											
355												
356	**Gamma Statistics**											
357				k hat (MLE)	2.63					k star (bias corrected MLE)	2.581	
358				Theta hat (MLE)	20.39					Theta star (bias corrected MLE)	20.78	
359				nu hat (MLE)	773.2					nu star (bias corrected)	758.7	
360				MLE Mean (bias corrected)	53.63					MLE Sd (bias corrected)	33.39	
361												
362	**Background Statistics Assuming Gamma Distribution**											
363				95% Wilson Hilferty (WH) Approx. Gamma UPL	117.3					90% Percentile	98.37	
364				95% Hawkins Wixley (HW) Approx. Gamma UPL	119.2					95% Percentile	117.6	

365				95% WH Approx. Gamma UTL with	95% Coverage	129.4					99% Percentile	159.7
366				95% HW Approx. Gamma UTL with	95% Coverage	132.5						
367					95% WH USL	237.7					95% HW USL	258.2
368												
369						**Lognormal GOF Test**						
370					Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk Lognormal GOF Test**					
371					5% Shapiro Wilk P Value	0.00381	Data Not Lognormal at 5% Significance Level					
372					Lilliefors Test Statistic	0.0591	**Lilliefors Lognormal GOF Test**					
373					5% Lilliefors Critical Value	0.0735	Data appear Lognormal at 5% Significance Level					
374						**Data appear Approximate Lognormal at 5% Significance Level**							
375												
376						**Background Statistics assuming Lognormal Distribution**							
377				95% UTL with	95% Coverage	148.5					90% Percentile (z)	101.2
378					95% UPL (t)	129.6					95% Percentile (z)	128.2
379					95% USL	386.7					99% Percentile (z)	200
380												
381						**Nonparametric Distribution Free Background Statistics**							
382						**Data appear Approximate Lognormal at 5% Significance Level**							
383												
384						**Nonparametric Upper Limits for Background Threshold Values**							
385					Order of Statistic, r	143					95% UTL with	95% Coverage 143
386					Approx, f used to compute achieved CC	1.505	Approximate Actual Confidence Coefficient achieved by UTL					0.863
387							Approximate Sample Size needed to achieve specified CC					181
388				95% Percentile Bootstrap UTL with	95% Coverage	144.6					95% BCA Bootstrap UTL with	95% Coverage 144.6
389					95% UPL	138.2					90% Percentile	110
390					90% Chebyshev UPL	161					95% Percentile	136.7
391					95% Chebyshev UPL	209.7					99% Percentile	155.9
392					95% USL	161						
393												
394						Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
395						Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
396						and consists of observations collected from clean unimpacted locations.							
397						The use of USL tends to provide a balance between false positives and false negatives provided the data							
398						represents a background data set and when many onsite observations need to be compared with the BTV.							
399												
400	**tDS**											
401												
402	**General Statistics**											
403					Total Number of Observations	103					Number of Distinct Observations	100
404					Minimum	90					First Quartile	494
405					Second Largest	942					Median	634
406					Maximum	969					Third Quartile	772.5
407					Mean	621					SD	190.3
408					Coefficient of Variation	0.306					Skewness	-0.5
409					Mean of logged Data	6.368					SD of logged Data	0.399
410												
411						**Critical Values for Background Threshold Values (BTVs)**							
412					Tolerance Factor K (For UTL)	1.919					d2max (for USL)	3.22
413												
414						**Normal GOF Test**							
415					Shapiro Wilk Test Statistic	0.961	**Normal GOF Test**					
416					5% Shapiro Wilk P Value	0.0254	Data Not Normal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
417					Lilliefors Test Statistic	0.102	**Lilliefors GOF Test**					
418					5% Lilliefors Critical Value	0.0876	Data Not Normal at 5% Significance Level					
419	**Data Not Normal at 5% Significance Level**											
420												
421	**Background Statistics Assuming Normal Distribution**											
422				95% UTL with	95% Coverage	986.1				90% Percentile (z)	864.8	
423					95% UPL (t)	938.3				95% Percentile (z)	933.9	
424					95% USL	1234				99% Percentile (z)	1064	
425												
426	**Gamma GOF Test**											
427					A-D Test Statistic	2.222	**Anderson-Darling Gamma GOF Test**					
428					5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level					
429					K-S Test Statistic	0.11	**Kolmogorov-Smirnov Gamma GOF Test**					
430					5% K-S Critical Value	0.0887	Data Not Gamma Distributed at 5% Significance Level					
431	**Data Not Gamma Distributed at 5% Significance Level**											
432												
433	**Gamma Statistics**											
434					k hat (MLE)	8.012				k star (bias corrected MLE)	7.785	
435					Theta hat (MLE)	77.51				Theta star (bias corrected MLE)	79.77	
436					nu hat (MLE)	1650				nu star (bias corrected)	1604	
437					MLE Mean (bias corrected)	621				MLE Sd (bias corrected)	222.6	
438												
439	**Background Statistics Assuming Gamma Distribution**											
440				95% Wilson Hilferty (WH) Approx. Gamma UPL		1029				90% Percentile	917.8	
441				95% Hawkins Wixley (HW) Approx. Gamma UPL		1049				95% Percentile	1027	
442				95% WH Approx. Gamma UTL with	95% Coverage	1108				99% Percentile	1252	
443				95% HW Approx. Gamma UTL with	95% Coverage	1135						
444					95% WH USL	1583				95% HW USL	1671	
445												
446	**Lognormal GOF Test**											
447					Shapiro Wilk Test Statistic	0.856	**Shapiro Wilk Lognormal GOF Test**					
448					5% Shapiro Wilk P Value	7.661E-15	Data Not Lognormal at 5% Significance Level					
449					Lilliefors Test Statistic	0.114	**Lilliefors Lognormal GOF Test**					
450					5% Lilliefors Critical Value	0.0876	Data Not Lognormal at 5% Significance Level					
451	**Data Not Lognormal at 5% Significance Level**											
452												
453	**Background Statistics assuming Lognormal Distribution**											
454				95% UTL with	95% Coverage	1252				90% Percentile (z)	971.1	
455					95% UPL (t)	1133				95% Percentile (z)	1122	
456					95% USL	2103				99% Percentile (z)	1473	
457												
458	**Nonparametric Distribution Free Background Statistics**											
459	**Data do not follow a Discernible Distribution (0.05)**											
460												
461	**Nonparametric Upper Limits for Background Threshold Values**											
462					Order of Statistic, r	101				95% UTL with	95% Coverage	930
463					Approx, f used to compute achieved CC	1.772				Approximate Actual Confidence Coefficient achieved by UTL		0.894
464										Approximate Sample Size needed to achieve specified CC		124
465				95% Percentile Bootstrap UTL with	95% Coverage	929.6				95% BCA Bootstrap UTL with	95% Coverage	928.3
466					95% UPL	909.2				90% Percentile	836.8	
467					90% Chebyshev UPL	1195				95% Percentile	892.5	
468					95% Chebyshev UPL	1454				99% Percentile	941.8	

	A	B	C	D	E	F	G	H	I	J	K	L
469					95% USL	969						
470												
471	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
472	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
473	and consists of observations collected from clean unimpacted locations.											
474	The use of USL tends to provide a balance between false positives and false negatives provided the data											
475	represents a background data set and when many onsite observations need to be compared with the BTV.											
476												


Box Plot for ph
8.1
7.8
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6.9
6.6
6.3
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