SKB Environmental, Inc.

2020 Coal Combustion Residuals Annual Monitoring Report

SKB Rosemount Industrial Waste Facility
13425 Courthouse Boulevard
Rosemount, Minnesota
Permit SW-383

January 29, 2021

2020 Coal Combustion Residuals Annual Monitoring Report

SKB Rosemount Industrial Waste Facility
13425 Courthouse Boulevard
Rosemount, Minnesota
Permit SW-383

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January 29, 2021

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

Signature: _____

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Date: 01/29/2021 License Number: 25086

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Acronyms

BTV	Background Threshold Values
CCR	Coal Combustion Residuals (CCR)
CFR	Code of Federal Regulations
COC	Chemicals of Concern
GES	Groundwater & Environmental Services, Inc.
GPS	Groundwater Protection Standards
Eurofins TA	Eurofins Test America, Inc.
ug/L	micrograms per liter
mg/l	milligrams per liter
MPCA	Minnesota Pollution Control Agency
NGVD	National Geodetic Vertical Datum
QA/QC	Quality assurance/quality control
Report	Coal Combustion Residuals Annual Monitoring Report
SKB Rosemount Landfill	SKB Rosemount Industrial Waste Facility
SSI	Statistically Significant Increase
USL	Upper Simultaneous Limit

1 Introduction

The *2020 Combustion Coal Residuals Annual Monitoring Report* (Report) was prepared to summarize the results of 2020 groundwater monitoring events and associated analysis for Appendix III (detection monitoring) and Appendix IV (assessment monitoring) to Part 257 at the SKB Rosemount Industrial Waste Facility (SKB Rosemount Landfill). The SKB Landfill operates under Minnesota Pollution Control Agency (MPCA) Site Permit Number SW-383. The SKB Rosemount Landfill is located at 13425 Courthouse Boulevard, Rosemount, and Dakota County, Minnesota (**Figure 1**).

Per 40 Code of Federal Regulations (CFR) §§ 257.90 – 257.98, 2 groundwater sampling events were conducted at the SKB Rosemount Landfill in the 1st quarter and fall of 2020. Groundwater samples were analyzed for parameters included in Appendix III (detection monitoring) and Appendix IV (assessment monitoring). Analytical results from the groundwater monitoring events were compared and evaluated to Background Threshold Values (BTVs) and Groundwater Protection Standards (GPS) established for the SKB Rosemount Landfill.

1.1 Scope of Work

The following scope of work was conducted for the 2020 Coal Combustion Residuals (CCR) groundwater monitoring events:

- Conduct 2 gauging and sampling events of the site's 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 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

SKB Rosemount Landfill was initially operated as an industrial waste containment facility. In the fall of 1999, the facility opened a Municipal Solid Waste Incinerator Ash cell (Cell 4), in the summer of 2004 the facility opened a Construction and Demolition cell (Cell 5), and in the fall 2009 the facility opened the 3M cell (Cell 3M). The site is located within a 236-acre parcel of land in Sections 19, 20, and 29, Township 115 North, Range 18 West, Dakota County, Minnesota (**Figure**

1). With reference to roadways, the facility is located between State Highway 55 and Ehlers Path East. The facility entrance is from State Highway 55.

Located in the Vermillion River watershed, the historical property prior to development, consist of rolling topography ranging in elevation from 820 feet above the National Geodetic Vertical Datum of 1929 (NGVD 29) in the southwest corner to 907 feet above NGVD 29 near the middle of the site. The site has since been altered, with the low point 800 feet above NGVD in the bottom of Cell 3A and Cell 3B to approximately 1,010 feet above NGVD at the top of Cells 3A/3D. A seasonal pond is located on the southwest corner of the property. Storm water flows either to natural depressions scattered about the site or to storm water retention areas in the southwest and north-central parts of the property. Storm water collected in these areas infiltrates into the soil. The nearest open water body is the Mississippi River located approximately 1 mile northeast of the site.

3 Monitoring Network Systems and Sampling Schedule

The groundwater monitoring network at the SKB Rosemount Landfill was designed based on the analysis of local and regional hydrologic conditions. Groundwater beneath the site generally moves from southwest (upgradient) to northeast (downgradient). Currently, the monitoring network consists of 28 monitoring wells (**Figure 2**).

The monitoring wells used as data collection points have been divided into 5 groups for the purpose of this report:

- Shallow Upgradient Monitoring Points (designated U#S). The shallow upgradient monitoring points consist of the monitoring wells that are completed in the shallow water table aquifer south (upgradient) of the compliance boundary.
- Deep Upgradient Monitoring Points (designated U#D). The deep upgradient monitoring points consist of monitoring wells that are completed in the Outwash/Prairie du Chien aquifer south of the compliance boundary.
- Shallow Downgradient Monitoring Points (designated D#S). The shallow downgradient monitoring points consist of the monitoring wells that are completed in the shallow water table aquifer along the north (downgradient) compliance boundary.
- Deep Downgradient Monitoring Points (designated D#D). The deep downgradient monitoring points consist of monitoring wells that are completed in the Outwash/Prairie du Chien aquifer north (downgradient) of the compliance boundary.
- Cell Wells (designated CW#). The cell wells are monitoring wells completed in the shallow aquifer immediately downgradient of the cell sumps.

For the CCR evaluation, 2 groundwater monitoring events were conducted in 2020 on the following dates:

- February 6-7, 2020
- October 19-21, 2020

4 Groundwater Sample Methodology

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

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

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

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

Groundwater samples were collected from 17 monitoring wells during the 2 sampling events in 2020 and were analyzed for parameters specified in Appendix III (1st quarter and fall events) and Appendix IV (1st quarter (analytes detected in fall 2019 event) and fall (full analyte list) events) per §§ 257.93 – 257.95 and are noted below:

Appendix III

General Chemistry

- Chloride (Method 300.0)
- Fluoride (Method 300.0)
- Sulfate as SO_4 (D-516-90, 02)
- pH (Standard Method 4500 H+ B)
- Total Dissolved Solids (Standard Method 2540C)

Metals

- Boron (Method 6010D)
- Calcium (Method 6010D)

Appendix IV

Metals (Total)

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium

- Cobalt
- Lead
- Lithium
- Mercury
- Molybdenum
- Radium 226
- Radium 228
- Selenium
- Thallium

General Chemistry

- Fluoride (D516-90, 02)

The above metals were analyzed by Methods 6010D, 6020B, and 7470A. Radium was analyzed by Method 903.0 and 904.0.

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

5 Groundwater Monitoring Results

5.1 Groundwater Elevation Data

Groundwater elevations recorded during the groundwater monitoring events are presented in **Table 1**. Groundwater contours maps were generated for the 1st quarter and October 2020 monitoring events. Groundwater elevation contour maps for both the water table and the deeper monitoring zone are presented in **Figures 3** through **6**. The groundwater flow is to the northeast across the site. This flow direction is consistent with historical flow direction.

5.2 Groundwater Analytical Data

Groundwater analytical results for the CCR monitoring events are presented in **Tables 2** and **3**. QA/QC duplicate samples were collected for precision evaluation, but were not included in **Tables 2** and **3**. A summary of the stabilization parameter tests performed for each well prior to sampling are provided in **Table 4** and copies of field sampling data sheets are in **Appendix A**. Laboratory analytical reports are included in **Appendix B**.

The calculated BTVs for the SKB Rosemount Landfill are provided in **Table 5**. Comparing the 2020 sampling results to the BTVs are summarized below.

Appendix III Analytes - Result Summary of BTV Exceedances

Boron (BTV = 0.325 mg/l)

- Downgradient monitoring well
  - D-3S (0.45 mg/l) (2/7/2020) – Exceedance confirmed. Statistically significant.
  - D-3S (0.33 mg/l) (10/20/2020)

Calcium (BTV = 131 mg/l)

- Downgradient monitoring well
  - D-3S (166 mg/l) (10/20/2020) – Exceedance not confirmed. Confirmation sampling scheduled for spring 2021.
  - D-5S2 (149 mg/l) (2/7/2020) – Exceedance but sampling results in the fall of 2020 indicate not statistically significant.

Chloride (BTV = 113 mg/l)

- Downgradient monitoring well
  - D-3S (119 mg/l) (2/7/2020) – Had exceedance in fall of 2019 and 1st quarter 2020 sampling result (119 mg/l) indicates statistically significant.
  - D-3S (241 mg/l) (10/20/2020)
  - D-5S2 (192 mg/l) (2/7/2020) – Had exceedance in the fall of 2019 and 1st quarter 2020 sampling results (192 mg/l) indicate statistically significant.

Appendix IV Analytes - Result Summary of BTV Exceedances

Barium (0.088 mg/l)

- Downgradient monitoring well
  - D-5S2 (0.097 mg/l) (2/7/2020) – Exceedance but sampling results in the fall of 2020 indicate not statistically significant.

Cobalt (0.0008 mg/l)

- Sidegradient monitoring well
  - D-8 (0.0019 mg/l) (2/7/2020) – Exceedance but sampling results in the fall of 2020 indicate not statistically significant.

Due to monitoring well D-7 being dry in 2017 during CCR background sampling events, limited background groundwater analytical data for D-7 is available. Thus, a separate evaluation of monitoring well D-7 groundwater sampling results for 2020 was completed and is included as **Appendix C**.

6 Statistical Evaluation 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 to the most recent sampling event in October 2020.

Statistical evaluation of the 2017 - 2020 CCR groundwater monitoring data determined background concentrations and included:

1) Establishing final background datasets for each chemical of concern (COC) including outlier testing.
2) Deriving statistical, upper bound estimates of the background population for each COC using the final background datasets.

To establish final background datasets for each COC, descriptive statistics, outlier analysis and comparative statistical analysis performed on the background datasets confirmed the data in the background dataset for a given COC as representative of the 'true' background population. Descriptive statistics include the number of samples, the number of detections, the detection frequency, the maximum and minimum detected concentrations, the mean, and the standard deviation of the background data, all of which provide a preliminary examination of data. Compounds where the data distribution does not fit the definition of background population (includes multiple outliers, is heavily skewed to the right), the BTV was calculated using Cheby UPL, which allows calculation of an upper limit when the data does not fit the USL definition.

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) or
- 95% upper prediction limit (UPL)

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.

The 95% UPL was selected as the proposed BTV for datasets with more than 20 observations when:

3) The data distribution for a COC contained multiple outliers,
4) The data set was skewed to the right.

For the above cases, the COC data sets no longer fit the definition of background population appropriate for USL calculations. In these cases the BTV was calculated using Chebynev's UPL, which allows calculation of an upper limit when the data does not fit the USL definition.

If there were no detected results, the highest detection limit was proposed as the BTV. The calculated BTVs are included in **Table 5**. The statistical evaluation data is included in **Appendix D**.

6.1 SSI Determination

The detected concentrations for the first and second half 2020 sampling event with the respective USL are listed below. Compliance is determined by comparing the current concentration to the calculated USL. Boron and chloride concentrations at D-3S were confirmed as SSI. Chloride concentrations at D-5S2 were confirmed as SSI.

Comparison of 2020 Confirmed COC Concentrations to USLs

Monitoring Well	Analyte	First Half 2020 Conc (mg/l unless noted)	USL Conc (mg/l unless noted)	Second Half 2020 Conc (mg/L unless noted)	USL Notes
D-3S	Boron	**0.45**	0.325	**0.33**	Non-parametric distribution Exceedance Confirmed
D-3S	Calcium	118	131	**166**	Exceedance not confirmed. Confirmation sampling scheduled for spring 2021

D-3S	Chloride	**119**	113	**241**	Exceedance confirmed.
D-5S2	Calcium	**149**	131	102	Exceedance but not statistically significant
D-5S2	Chloride	**192**	113	79.6	Exceedance confirmed using fall 2019 results
D-5S2	Barium	**0.097**	0.088	0.063	Exceedance but not statistically significant
D-8	Cobalt	**0.0019**	0.0008	ND (<0.0003)	Exceedance but not statistically significant

7 Groundwater Protection Standards

Per § 257.95(d)(2), Groundwater Protection Standards (GPS) were established for each Appendix IV constituent detected in the groundwater. GPS were established using United States Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs) for detected Appendix IV 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 6**.

For the sampling events conducted in 2019, no constituent in Appendix IV was detected at a statistical significant level above established GPS levels for the site (**Table 7**).

8 Report Summary

Per the 40 CFR §§ 40.257.93 – 257.95, 2 monitoring events (1st quarter and fall) were conducted in 2020 at the SKB Lansing Rosemount Landfill. Groundwater samples were collected from the monitoring network's 17 monitoring wells (D-1D, D-1S, D-2D, D-2S, D-3D, D-3S, D-4D, D-4S, D-5D, D-5S2, D-7, D-8, D-9, U-4D, U-4S, U-5D, and U-5S). Groundwater samples were analyzed for parameters specified in Appendix III (detection monitoring) and Appendix IV (assessment monitoring).

The groundwater data collected in the 2017 – 2020 sampling events were statistically tested following the concepts outlined in this report to form a background data set. Interwell USLs were developed for Chloride Fluoride, Sulfate as SO_4, Total Dissolved Solids, Boron, Calcium and in 16 monitoring wells (D-1D, D-1S, D-2D, D-2S, D-3D, D-3S, D-4D, D-4S, D-5D, D-5S2, D-8, D-9, U-4D, U-4S, U-5D, and U-5S). Upper and lower threshold values were developed for pH using

USL and box plot statistics. The resulting USLs were compared to the current concentrations for each COC and well pair.

The following analytes were reported above the calculated BTVs in 2020:

Appendix III Analytes

- A Boron groundwater concentration was detected above the BTV at downgradient monitoring well D-3S during the 1st quarter and fall 2020 sampling events. These concentrations were confirmed exceedances.

- A Calcium groundwater concentration was detected above the BTV at monitoring well D-3S during the fall 2020 sampling event. Confirmation sampling will be conducted in the spring 2021 to determine if statistically significant.

- A Calcium groundwater concentration was detected above the BTV at downgradient monitoring well D-5S2 during the 1st quarter 2020 sampling event. Subsequent confirmation sampling during the fall 2020 determined this exceedance was not considered statistically significant.

- A Chloride concentration was detected above the BTV at downgradient monitoring well D-3S during the 1st quarter and fall 2020 sampling events. These concentrations were confirmed exceedances.

- A Chloride concentration was detected above the BTV at downgradient monitoring well D-5S2 during the 1st quarter 2020 sampling event. This concentration was considered statistically significant and a confirmed exceedance based on fall 2019 sampling results.

Appendix IV Analytes

- A Barium concentration was detected above the BTV at downgradient monitoring well D-5S2 during the 1st quarter 2020 sampling event. Subsequent confirmation sampling during the fall 2020 determined this exceedance was not considered statistically significant.

- A Cobalt concentration was detected above the BTV at sidegradient monitoring well D-8 during the 1st quarter 2020 sampling event. Subsequent confirmation sampling during the fall 2020 determined this exceedance was not considered statistically significant.

Groundwater concentrations from the 2020 monitoring events were compared to established GPS values. No constituents in Appendix IV were detected at a statistical significant level above established GPS values for the site.

Monitoring well D-7 2020 sampling results are evaluated separately due to limited background analytical data and is included in **Appendix C**.

9 Recommendations

CCR groundwater monitoring events will be conducted in 2021 by the following schedule:

Late April 2021

Conduct a groundwater sampling event of the site's monitoring well network and analyze the groundwater samples for constituents listed in Appendix III and Appendix IV (only analytes detected in the fall 2020 event).

Fall 2021

Conduct a groundwater sampling event of the site's monitoring well network and analyze the groundwater samples for constituents listed in Appendix III and Appendix IV (full list).

An evaluation of groundwater analytical results after each monitoring event will be completed to determine if a significant increase over BTVs for one or more constituent listed in Appendix III and Appendix IV 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. Additionally, groundwater concentrations of constituents listed in Appendix IV will be compared to establish GPS values.

A 2021 Annual Monitoring Report will be prepared and include sampling results from the 2020 CCR groundwater monitoring events and an evaluation of the analytical results as they pertained to BTVs and GPS values.

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.

United States Geological Survey, 1967 (revised 1993). *7.5-minute quadrangle map, Inver Grove Heights.*

Figures

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

QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	SITE LOCATION MAP
CHECKED BY: NS	SKB ENVIRONMENTAL INC. ROSEMOUNT FACILITY 13425 COURTHOUSE BOULEVARD ROSEMOUNT, MINNESOTA
REVIEWED BY: JFS	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121
NORTH	SCALE IN FEET: 0 — 2000 / DATE: 1-10-14 / FIGURE: 1

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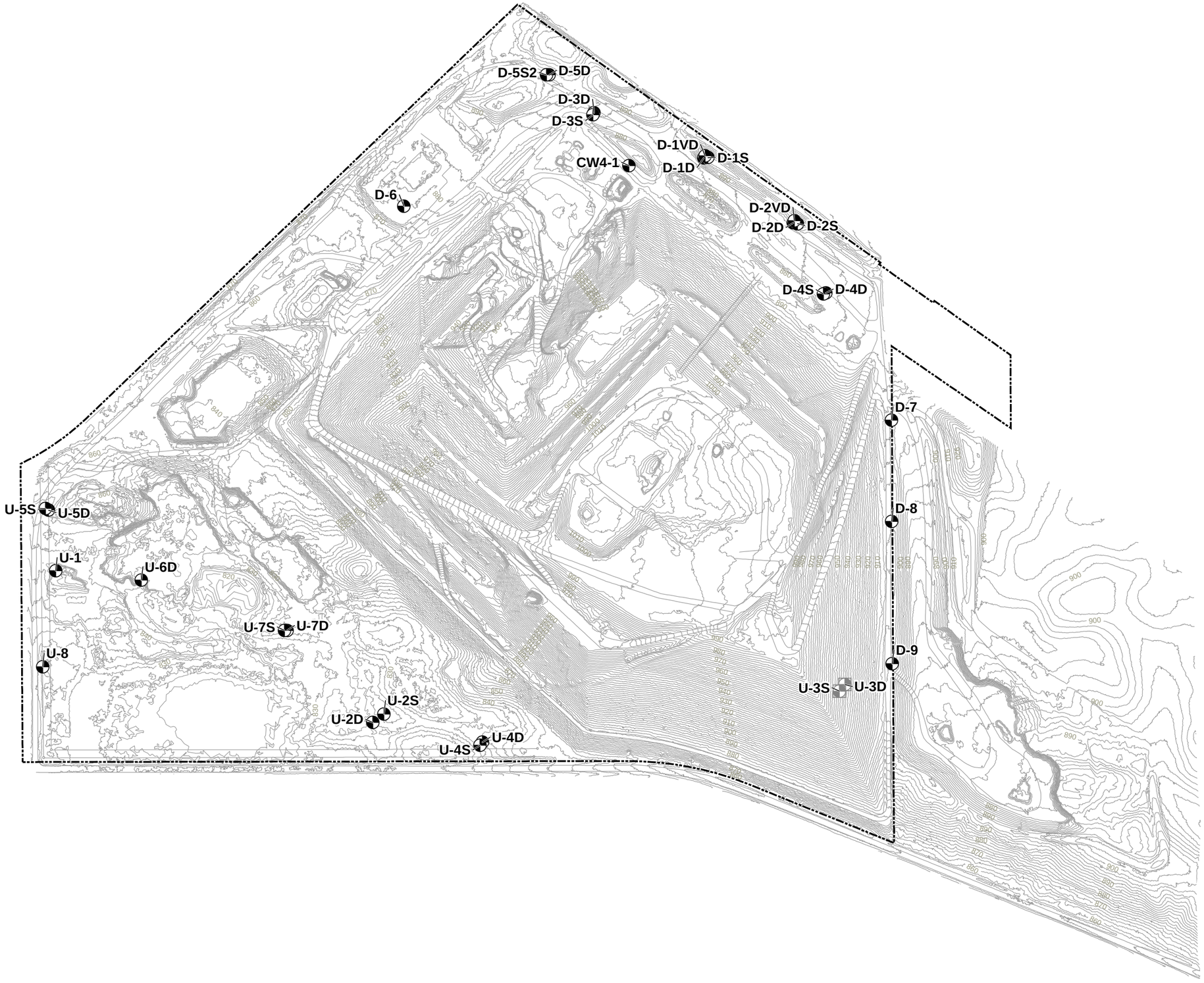

Legend

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL
- ABANDONED MONITORING WELL

Site Map

SKB Environmental Inc.
Rosemount Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

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

Date **1/15/21**
Figure **2**

N

Scale In Feet (Approximate)
0 450

Groundwater & Environmental Services, Inc.

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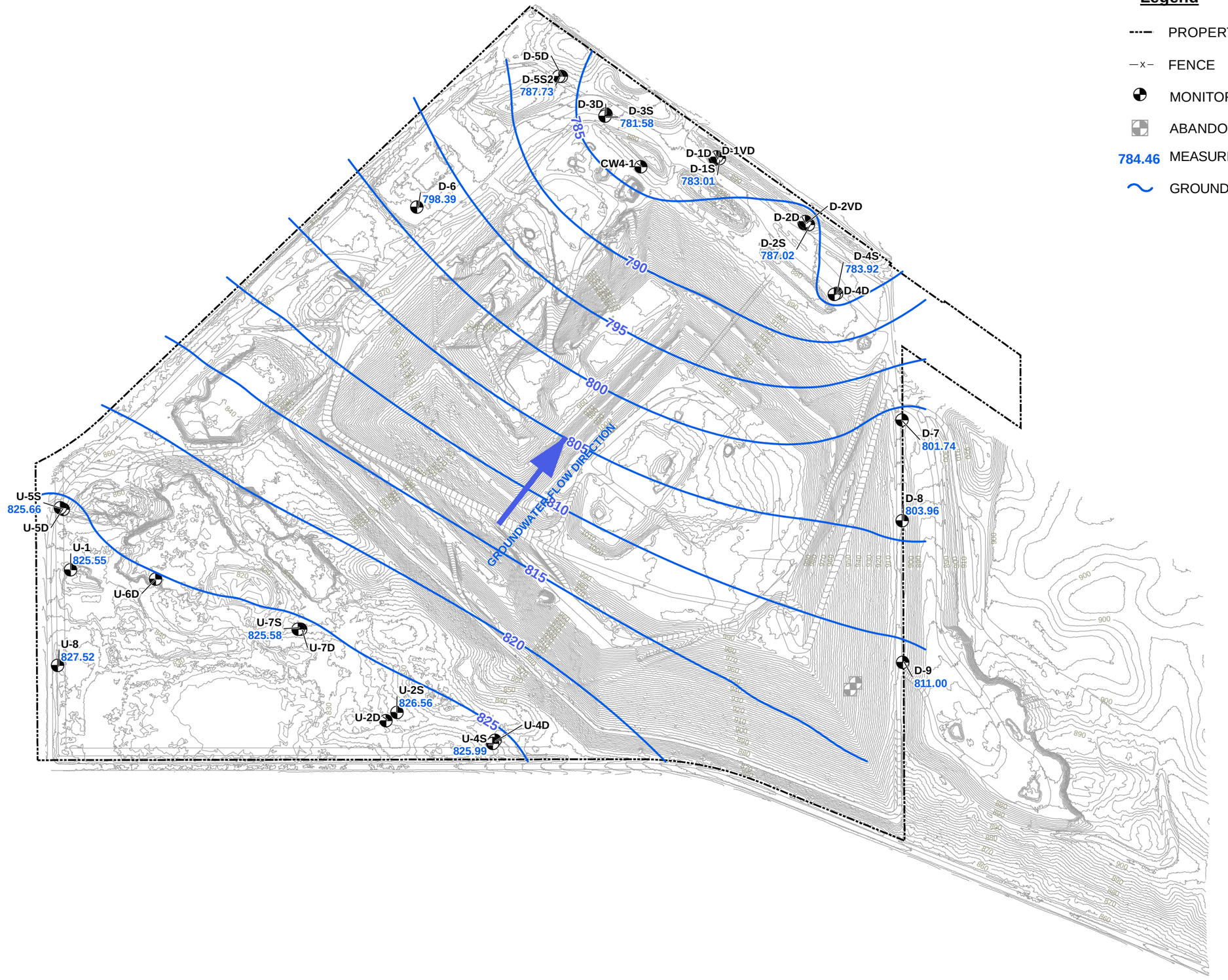

Legend

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL
- ABANDONED MONITORING WELL
- 784.46 MEASURED GROUNDWATER ELEVATION (ft MSL)
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)

Water Table Contour Map
February 6, 2020

SKB Environmental Inc.
Rosemount Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

Drawn **GKS**
Designed **DMC**
Approved **JFS**
Date **1/19/21**
Figure **3**

Scale In Feet (Approximate)
0 450

Groundwater & Environmental Services, Inc.

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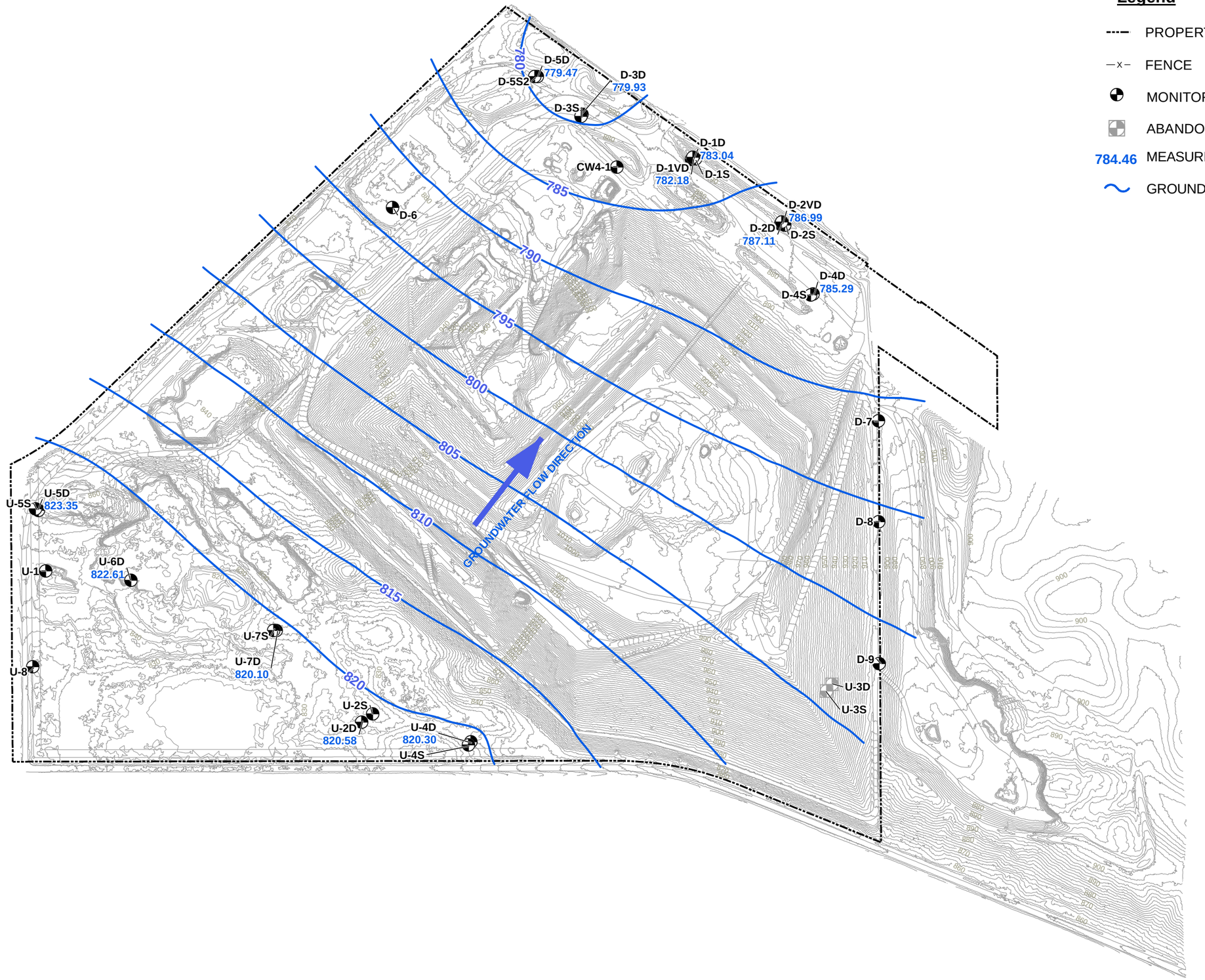

Legend

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL
- ABANDONED MONITORING WELL
- 784.46 MEASURED GROUNDWATER ELEVATION (ft MSL)
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)

Potentiometric Surface Contour Map
February 6, 2020

SKB Environmental Inc.
Rosemount Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

Drawn **GKS**
Designed **DMC**
Approved **JFS**
Date **1/18/21**
Figure **4**

Scale In Feet (Approximate)
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Groundwater & Environmental Services, Inc.

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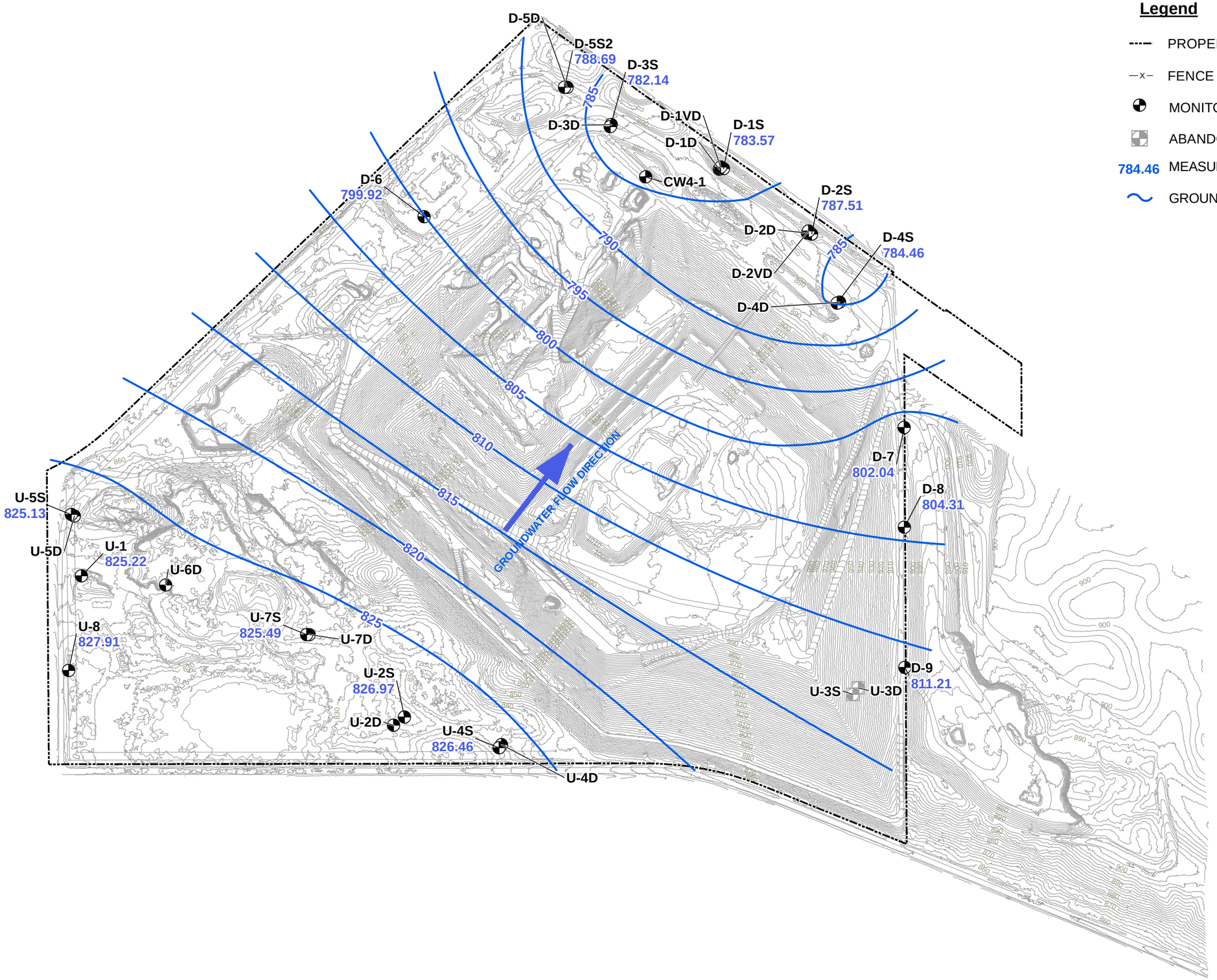

Legend

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL
- ABANDONED MONITORING WELL
- 784.46 MEASURED GROUNDWATER ELEVATION (ft MSL)
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)

Water Table Contour Map
October 19, 2020

SKB Environmental Inc.
Rosemount Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

Drawn **GKS**
Designed **DMC**
Approved **JFS**
Date **1/18/21**
Figure **5**

Scale In Feet (Approximate)
0 450

Groundwater & Environmental Services, Inc.

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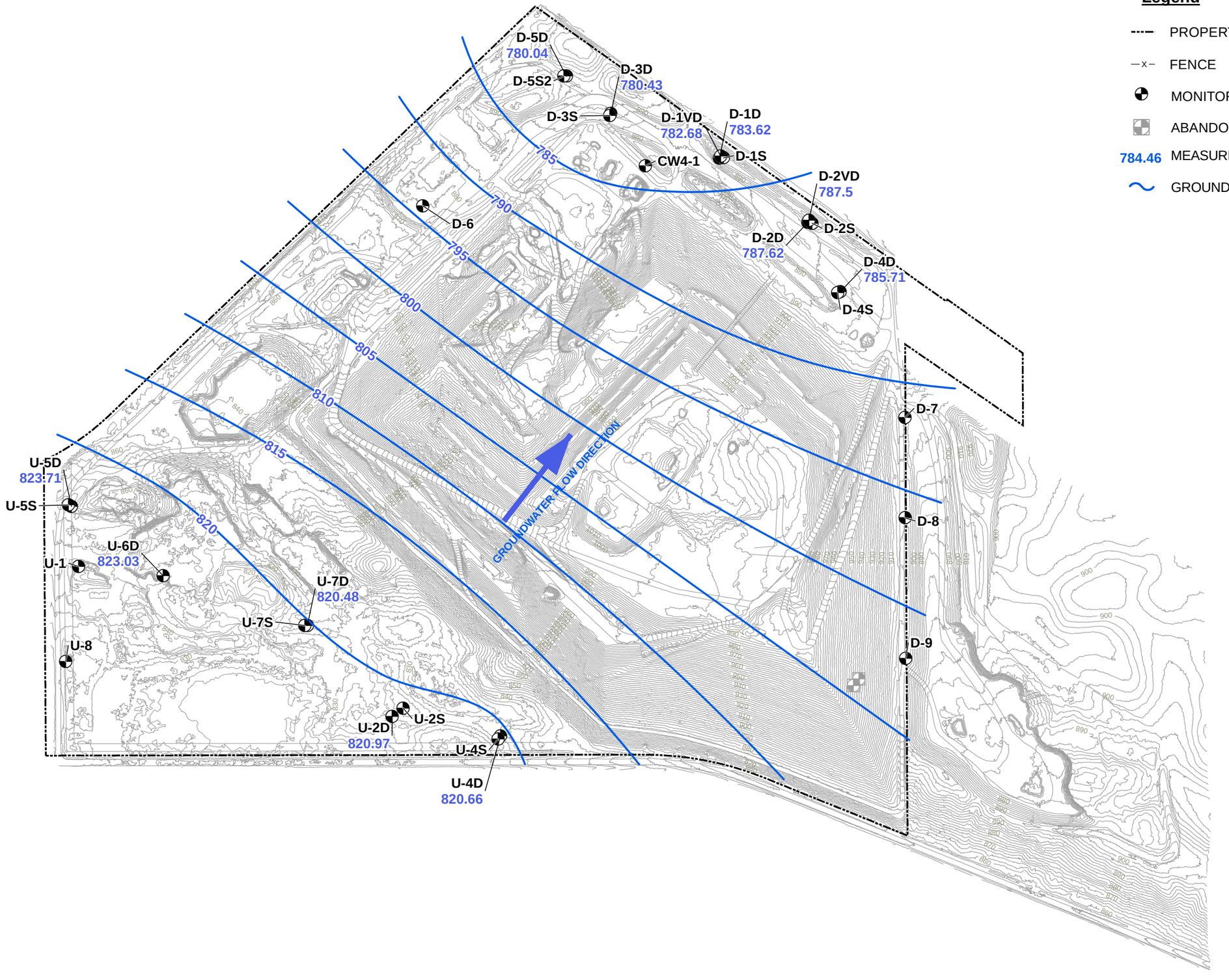

Legend

- PROPERTY BOUNDARY
- FENCE
- MONITORING WELL
- ABANDONED MONITORING WELL
- 784.46 MEASURED GROUNDWATER ELEVATION (ft MSL)
- GROUNDWATER ELEVATION ISOCONTOUR (ft MSL)

Potentiometric Surface Contour Map
October 19, 2020

SKB Environmental Inc.
Rosemount Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

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

Date **1/18/21**
Figure **6**

Scale In Feet (Approximate)
0 450

Groundwater & Environmental Services, Inc.

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Tables

2020 CCR Annual Monitoring Report
SKB Rosemount Industrial Waste Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

Table 1

Groundwater Elevations
Downgradient Deep Wells

DATE	D-1D	D-1VD	D-2D	D-2VD	D-3D	D-4D	D-5D
02/06/2020	783.04	782.18	787.11	786.99	779.93	785.29	779.47
10/19/2020	783.62	782.68	787.62	787.5	780.43	785.71	780.04

Table 1

Groundwater Elevations
Downgradient Shallow Wells

DATE	D-1S	D-2S	D-3S	D-4S	D-5S2	D-6	D-7	D-8	D-9
02/06/2020	783.01	787.02	781.58	783.92	787.73	798.39	801.74	803.96	811.00
10/19/2020	783.57	787.51	782.14	784.46	788.69	799.92	802.04	804.31	811.21

Table 1

Groundwater Elevations
Upgradient Deep Wells

DATE	U-2D	U-4D	U-5D	U-6D	U-7D
2/6/2020	820.58	820.30	823.35	822.61	820.10
10/19/2020	820.97	820.66	823.71	823.03	820.48

Table 1

Groundwater Elevations
Upgradient Shallow Wells

DATE	U-1	U-2S	U-4S	U-5S	U-7S	U-8
2/6/2020	825.55	826.56	825.99	825.66	825.58	827.52
10/19/2020	825.22	826.97	826.46	825.13	825.49	827.91

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
D-1D	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-1D	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-1D	02/07/2020	Calcium	81.9	131	mg/l	7440-70-2
D-1D	10/20/2020	Calcium	91.2	131	mg/l	7440-70-2
D-1D	02/07/2020	Chloride	30.6	113	mg/l	16887-00-6
D-1D	10/20/2020	Chloride	29.0	113	mg/l	16887-00-6
D-1D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-1D	10/20/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-1D	02/07/2020	pH	7.8	7.1 < 8.2	pH UNITS	PH
D-1D	10/20/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-1D	02/07/2020	Sulfate as SO4	36.1	67.3	mg/l	14808-79-8
D-1D	10/20/2020	Sulfate as SO4	40.3	67.3	mg/l	14808-79-8
D-1D	02/07/2020	Total Dissolved Solids	358	711	mg/l	TDS
D-1D	10/20/2020	Total Dissolved Solids	273	711	mg/l	TDS
D-1S	02/07/2020	Boron	0.035	0.325	mg/l	7440-42-8
D-1S	10/20/2020	Boron	0.035	0.325	mg/l	7440-42-8
D-1S	02/07/2020	Calcium	104	131	mg/l	7440-70-2
D-1S	10/20/2020	Calcium	102	131	mg/l	7440-70-2
D-1S	02/07/2020	Chloride	35.4	113	mg/l	16887-00-6
D-1S	10/20/2020	Chloride	43.4	113	mg/l	16887-00-6
D-1S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-1S	10/20/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-1S	02/07/2020	pH	7.5	7.1 < 8.2	pH UNITS	PH
D-1S	10/20/2020	pH	7.2	7.1 < 8.2	pH UNITS	PH
D-1S	02/07/2020	Sulfate as SO4	28.8	67.3	mg/l	14808-79-8
D-1S	10/20/2020	Sulfate as SO4	22.4	67.3	mg/l	14808-79-8
D-1S	02/07/2020	Total Dissolved Solids	405	711	mg/l	TDS
D-1S	10/20/2020	Total Dissolved Solids	527	711	mg/l	TDS
D-2D	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-2D	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-2D	02/07/2020	Calcium	89.9	131	mg/l	7440-70-2
D-2D	10/20/2020	Calcium	95.4	131	mg/l	7440-70-2
D-2D	02/07/2020	Chloride	35.2	113	mg/l	16887-00-6
D-2D	10/20/2020	Chloride	33.0	113	mg/l	16887-00-6
D-2D	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-2D	10/20/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-2D	02/07/2020	pH	7.8	7.1 < 8.2	pH UNITS	PH
D-2D	10/20/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
D-2D	02/07/2020	Sulfate as SO4	32.3	67.3	mg/l	14808-79-8
D-2D	10/20/2020	Sulfate as SO4	35.8	67.3	mg/l	14808-79-8
D-2D	02/07/2020	Total Dissolved Solids	366	711	mg/l	TDS
D-2D	10/20/2020	Total Dissolved Solids	354	711	mg/l	TDS

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
D-2S	02/07/2020	Boron	0.027	0.325	mg/l	7440-42-8
D-2S	10/20/2020	Boron	0.027	0.325	mg/l	7440-42-8
D-2S	02/07/2020	Calcium	104	131	mg/l	7440-70-2
D-2S	10/20/2020	Calcium	106	131	mg/l	7440-70-2
D-2S	02/07/2020	Chloride	42.3	113	mg/l	16887-00-6
D-2S	10/20/2020	Chloride	37.8	113	mg/l	16887-00-6
D-2S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-2S	10/20/2020	Fluoride	< 0.050	0.25	mg/l	16984-48-8
D-2S	02/07/2020	pH	7.6	7.1 < 8.2	pH UNITS	PH
D-2S	10/20/2020	pH	7.2	7.1 < 8.2	pH UNITS	PH
D-2S	02/07/2020	Sulfate as SO4	30.5	67.3	mg/l	14808-79-8
D-2S	10/20/2020	Sulfate as SO4	28.9	67.3	mg/l	14808-79-8
D-2S	02/07/2020	Total Dissolved Solids	430	711	mg/l	TDS
D-2S	10/20/2020	Total Dissolved Solids	383	711	mg/l	TDS
D-3D	02/07/2020	Boron	0.054	0.325	mg/l	7440-42-8
D-3D	10/20/2020	Boron	0.060	0.325	mg/l	7440-42-8
D-3D	02/07/2020	Calcium	106	131	mg/l	7440-70-2
D-3D	10/20/2020	Calcium	115	131	mg/l	7440-70-2
D-3D	02/07/2020	Chloride	75.2	113	mg/l	16887-00-6
D-3D	10/20/2020	Chloride	82.8	113	mg/l	16887-00-6
D-3D	02/07/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-3D	10/20/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-3D	02/07/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-3D	10/20/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
D-3D	02/07/2020	Sulfate as SO4	42.7	67.3	mg/l	14808-79-8
D-3D	10/20/2020	Sulfate as SO4	49.4	67.3	mg/l	14808-79-8
D-3D	02/07/2020	Total Dissolved Solids	433	711	mg/l	TDS
D-3D	10/20/2020	Total Dissolved Solids	547	711	mg/l	TDS
D-3S	02/07/2020	Boron	**0.45**	0.325	mg/l	7440-42-8
D-3S	10/20/2020	Boron	**0.33**	0.325	mg/l	7440-42-8
D-3S	02/07/2020	Calcium	118	131	mg/l	7440-70-2
D-3S	10/20/2020	Calcium	**166**	131	mg/l	7440-70-2
D-3S	02/07/2020	Chloride	**119**	113	mg/l	16887-00-6
D-3S	10/20/2020	Chloride	**241**	113	mg/l	16887-00-6
D-3S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-3S	10/20/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-3S	02/07/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-3S	10/20/2020	pH	7.2	7.1 < 8.2	pH UNITS	PH
D-3S	02/07/2020	Sulfate as SO4	55.3	67.3	mg/l	14808-79-8
D-3S	10/20/2020	Sulfate as SO4	41.6	67.3	mg/l	14808-79-8
D-3S	02/07/2020	Total Dissolved Solids	526	711	mg/l	TDS
D-3S	10/20/2020	Total Dissolved Solids	444	711	mg/l	TDS

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
D-4D	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-4D	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-4D	02/07/2020	Calcium	100	131	mg/l	7440-70-2
D-4D	10/20/2020	Calcium	101	131	mg/l	7440-70-2
D-4D	02/07/2020	Chloride	47.1	113	mg/l	16887-00-6
D-4D	10/20/2020	Chloride	46.2	113	mg/l	16887-00-6
D-4D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-4D	10/20/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-4D	02/07/2020	pH	7.8	7.1 < 8.2	pH UNITS	PH
D-4D	10/20/2020	pH	7.2	7.1 < 8.2	pH UNITS	PH
D-4D	02/07/2020	Sulfate as SO4	34.4	67.3	mg/l	14808-79-8
D-4D	10/20/2020	Sulfate as SO4	37.0	67.3	mg/l	14808-79-8
D-4D	02/07/2020	Total Dissolved Solids	414	711	mg/l	TDS
D-4D	10/20/2020	Total Dissolved Solids	383	711	mg/l	TDS
D-4S	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-4S	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-4S	02/07/2020	Calcium	97.4	131	mg/l	7440-70-2
D-4S	10/20/2020	Calcium	105	131	mg/l	7440-70-2
D-4S	02/07/2020	Chloride	49.3	113	mg/l	16887-00-6
D-4S	10/20/2020	Chloride	45.6	113	mg/l	16887-00-6
D-4S	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-4S	10/20/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-4S	02/07/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-4S	10/20/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
D-4S	02/07/2020	Sulfate as SO4	33.6	67.3	mg/l	14808-79-8
D-4S	10/20/2020	Sulfate as SO4	37.4	67.3	mg/l	14808-79-8
D-4S	02/07/2020	Total Dissolved Solids	418	711	mg/l	TDS
D-4S	10/20/2020	Total Dissolved Solids	377	711	mg/l	TDS
D-5D	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-5D	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-5D	02/07/2020	Calcium	99.7	131	mg/l	7440-70-2
D-5D	10/20/2020	Calcium	108	131	mg/l	7440-70-2
D-5D	02/07/2020	Chloride	35.6	113	mg/l	16887-00-6
D-5D	10/20/2020	Chloride	40.6	113	mg/l	16887-00-6
D-5D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-5D	10/20/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-5D	02/07/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-5D	10/20/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
D-5D	02/07/2020	Sulfate as SO4	40.1	67.3	mg/l	14808-79-8
D-5D	10/20/2020	Sulfate as SO4	48.3	67.3	mg/l	14808-79-8
D-5D	02/07/2020	Total Dissolved Solids	330	711	mg/l	TDS
D-5D	10/20/2020	Total Dissolved Solids	382	711	mg/l	TDS

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
D-5S2	02/07/2020	Boron	0.17	0.325	mg/l	7440-42-8
D-5S2	10/20/2020	Boron	0.092	0.325	mg/l	7440-42-8
D-5S2	02/07/2020	Calcium	**149**	131	mg/l	7440-70-2
D-5S2	10/20/2020	Calcium	102	131	mg/l	7440-70-2
D-5S2	02/07/2020	Chloride	**192**	113	mg/l	16887-00-6
D-5S2	10/20/2020	Chloride	79.6	113	mg/l	16887-00-6
D-5S2	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-5S2	10/20/2020	Fluoride	0.060	0.25	mg/l	16984-48-8
D-5S2	02/07/2020	pH	7.6	7.1 < 8.2	pH UNITS	PH
D-5S2	10/20/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
D-5S2	02/07/2020	Sulfate as SO4	67.0	67.3	mg/l	14808-79-8
D-5S2	10/20/2020	Sulfate as SO4	58.9	67.3	mg/l	14808-79-8
D-5S2	02/07/2020	Total Dissolved Solids	711	711	mg/l	TDS
D-5S2	10/20/2020	Total Dissolved Solids	597	711	mg/l	TDS
D-8	02/07/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-8	10/20/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
D-8	02/07/2020	Calcium	127	131	mg/l	7440-70-2
D-8	10/20/2020	Calcium	108	131	mg/l	7440-70-2
D-8	02/07/2020	Chloride	42.3	113	mg/l	16887-00-6
D-8	10/20/2020	Chloride	37.0	113	mg/l	16887-00-6
D-8	02/07/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
D-8	10/20/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
D-8	02/07/2020	pH	7.9	7.1 < 8.2	pH UNITS	PH
D-8	10/20/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
D-8	02/07/2020	Sulfate as SO4	47.2	67.3	mg/l	14808-79-8
D-8	10/20/2020	Sulfate as SO4	52.0	67.3	mg/l	14808-79-8
D-8	02/07/2020	Total Dissolved Solids	405	711	mg/l	TDS
D-8	10/20/2020	Total Dissolved Solids	499	711	mg/l	TDS
D-9	02/07/2020	Boron	0.022	0.325	mg/l	7440-42-8
D-9	10/21/2020	Boron	0.023	0.325	mg/l	7440-42-8
D-9	02/07/2020	Calcium	89.8	131	mg/l	7440-70-2
D-9	10/21/2020	Calcium	108	131	mg/l	7440-70-2
D-9	02/07/2020	Chloride	33.3	113	mg/l	16887-00-6
D-9	10/21/2020	Chloride	30.8	113	mg/l	16887-00-6
D-9	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-9	10/21/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-9	02/07/2020	pH	7.7	7.1 < 8.2	pH UNITS	PH
D-9	10/21/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
D-9	02/07/2020	Sulfate as SO4	34.5	67.3	mg/l	14808-79-8
D-9	10/21/2020	Sulfate as SO4	38.4	67.3	mg/l	14808-79-8
D-9	02/07/2020	Total Dissolved Solids	354	711	mg/l	TDS
D-9	10/21/2020	Total Dissolved Solids	466	711	mg/l	TDS

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
U-4D	02/06/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-4D	10/19/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-4D	02/06/2020	Calcium	84.2	131	mg/l	7440-70-2
U-4D	10/19/2020	Calcium	91.2	131	mg/l	7440-70-2
U-4D	02/06/2020	Chloride	37.2	113	mg/l	16887-00-6
U-4D	10/19/2020	Chloride	32.4	113	mg/l	16887-00-6
U-4D	02/06/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-4D	10/19/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
U-4D	02/06/2020	pH	7.8	7.1 < 8.2	pH UNITS	PH
U-4D	10/19/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
U-4D	02/06/2020	Sulfate as SO4	36.3	67.3	mg/l	14808-79-8
U-4D	10/19/2020	Sulfate as SO4	39.5	67.3	mg/l	14808-79-8
U-4D	02/06/2020	Total Dissolved Solids	385	711	mg/l	TDS
U-4D	10/19/2020	Total Dissolved Solids	420	711	mg/l	TDS
U-4S	02/06/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-4S	10/19/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-4S	02/06/2020	Calcium	75.4	131	mg/l	7440-70-2
U-4S	10/19/2020	Calcium	90.8	131	mg/l	7440-70-2
U-4S	02/06/2020	Chloride	46.1	113	mg/l	16887-00-6
U-4S	10/19/2020	Chloride	47.8	113	mg/l	16887-00-6
U-4S	02/06/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
U-4S	10/19/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
U-4S	02/06/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
U-4S	10/19/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
U-4S	02/06/2020	Sulfate as SO4	< 2.0	67.3	mg/l	14808-79-8
U-4S	10/19/2020	Sulfate as SO4	15.1	67.3	mg/l	14808-79-8
U-4S	02/06/2020	Total Dissolved Solids	349	711	mg/l	TDS
U-4S	10/19/2020	Total Dissolved Solids	326	711	mg/l	TDS
U-5D	02/06/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-5D	10/19/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-5D	02/06/2020	Calcium	84.1	131	mg/l	7440-70-2
U-5D	10/19/2020	Calcium	90.3	131	mg/l	7440-70-2
U-5D	02/06/2020	Chloride	29.6	113	mg/l	16887-00-6
U-5D	10/19/2020	Chloride	27.7	113	mg/l	16887-00-6
U-5D	02/06/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5D	10/19/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5D	02/06/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
U-5D	10/19/2020	pH	7.4	7.1 < 8.2	pH UNITS	PH
U-5D	02/06/2020	Sulfate as SO4	39.4	67.3	mg/l	14808-79-8
U-5D	10/19/2020	Sulfate as SO4	40.6	67.3	mg/l	14808-79-8
U-5D	02/06/2020	Total Dissolved Solids	387	711	mg/l	TDS
U-5D	10/19/2020	Total Dissolved Solids	406	711	mg/l	TDS

Table 2

Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Background Threshold Value (BTV)	Units	CAS #
U-5S	02/06/2020	Boron	< 0.020	0.325	mg/l	7440-42-8
U-5S	10/19/2020	Boron	0.055	0.325	mg/l	7440-42-8
U-5S	02/06/2020	Calcium	73.7	131	mg/l	7440-70-2
U-5S	10/19/2020	Calcium	94.0	131	mg/l	7440-70-2
U-5S	02/06/2020	Chloride	52.4	113	mg/l	16887-00-6
U-5S	10/19/2020	Chloride	31.0	113	mg/l	16887-00-6
U-5S	02/06/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
U-5S	10/19/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5S	02/06/2020	pH	7.8	7.1 < 8.2	pH UNITS	PH
U-5S	10/19/2020	pH	7.3	7.1 < 8.2	pH UNITS	PH
U-5S	02/06/2020	Sulfate as SO4	21.2	67.3	mg/l	14808-79-8
U-5S	10/19/2020	Sulfate as SO4	37.3	67.3	mg/l	14808-79-8
U-5S	02/06/2020	Total Dissolved Solids	348	711	mg/l	TDS
U-5S	10/19/2020	Total Dissolved Solids	331	711	mg/l	TDS

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

Table 3

Groundwater Analytical Data
Appendix IV

Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
D-1D	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-1D	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-1D	02/07/2020	Barium	0.047	0.088	mg/l	7440-39-3
D-1D	10/20/2020	Barium	0.050	0.088	mg/l	7440-39-3
D-1D	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-1D	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-1D	02/07/2020	Chromium	0.0045	0.108	mg/l	7440-47-3
D-1D	10/20/2020	Chromium	0.0067	0.108	mg/l	7440-47-3
D-1D	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-1D	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-1D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-1D	10/20/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-1D	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-1D	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-1D	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-1D	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-1D	02/07/2020	Radium (226)	< 0.151	0.372	pci/l	13982-63-3
D-1D	10/20/2020	Radium (226)	< 0.305	0.372	pci/l	13982-63-3
D-1D	02/07/2020	Radium 228	< 0.432	1.3	pci/l	15262-20-1
D-1D	10/20/2020	Radium 228	0.543	1.3	pci/l	15262-20-1
D-1D	02/07/2020	Total Radium 226/228	< 0.432	1.672	pci/l	425
D-1D	10/20/2020	Total Radium 226/228	0.543	1.672	pci/l	425
D-1D	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-1D	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-1S	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-1S	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-1S	02/07/2020	Barium	0.055	0.088	mg/l	7440-39-3
D-1S	10/20/2020	Barium	0.055	0.088	mg/l	7440-39-3
D-1S	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-1S	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-1S	02/07/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-1S	10/20/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-1S	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-1S	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-1S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-1S	10/20/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-1S	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-1S	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-1S	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-1S	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-1S	02/07/2020	Radium (226)	< 0.132	0.372	pci/l	13982-63-3
D-1S	10/20/2020	Radium (226)	< 0.285	0.372	pci/l	13982-63-3

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Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
D-1S	02/07/2020	Radium 228	< 0.452	1.3	pci/l	15262-20-1
D-1S	10/20/2020	Radium 228	< 0.580	1.3	pci/l	15262-20-1
D-1S	02/07/2020	Total Radium 226/228	< 0.452	1.672	pci/l	425
D-1S	10/20/2020	Total Radium 226/228	< 0.580	1.672	pci/l	425
D-1S	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-1S	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-2D	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-2D	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-2D	02/07/2020	Barium	0.053	0.088	mg/l	7440-39-3
D-2D	10/20/2020	Barium	0.055	0.088	mg/l	7440-39-3
D-2D	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-2D	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-2D	02/07/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-2D	10/20/2020	Chromium	0.0044	0.108	mg/l	7440-47-3
D-2D	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-2D	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-2D	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-2D	10/20/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-2D	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-2D	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-2D	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-2D	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-2D	02/07/2020	Radium (226)	0.115	0.372	pci/l	13982-63-3
D-2D	10/20/2020	Radium (226)	< 0.372	0.372	pci/l	13982-63-3
D-2D	02/07/2020	Radium 228	< 0.419	1.3	pci/l	15262-20-1
D-2D	10/20/2020	Radium 228	0.884	1.3	pci/l	15262-20-1
D-2D	02/07/2020	Total Radium 226/228	0.115	1.672	pci/l	425
D-2D	10/20/2020	Total Radium 226/228	0.884	1.672	pci/l	425
D-2D	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-2D	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-2S	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-2S	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-2S	02/07/2020	Barium	0.051	0.088	mg/l	7440-39-3
D-2S	10/20/2020	Barium	0.050	0.088	mg/l	7440-39-3
D-2S	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-2S	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-2S	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-2S	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-2S	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-2S	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-2S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-2S	10/20/2020	Fluoride	< 0.050	0.25	mg/l	16984-48-8

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D-2S	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-2S	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-2S	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-2S	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-2S	02/07/2020	Radium (226)	< 0.147	0.372	pci/l	13982-63-3
D-2S	10/20/2020	Radium (226)	< 0.368	0.372	pci/l	13982-63-3
D-2S	02/07/2020	Radium 228	< 0.442	1.3	pci/l	15262-20-1
D-2S	10/20/2020	Radium 228	< 0.747	1.3	pci/l	15262-20-1
D-2S	02/07/2020	Total Radium 226/228	< 0.442	1.672	pci/l	425
D-2S	10/20/2020	Total Radium 226/228	< 0.747	1.672	pci/l	425
D-2S	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-2S	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-3D	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-3D	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-3D	02/07/2020	Barium	0.061	0.088	mg/l	7440-39-3
D-3D	10/20/2020	Barium	0.065	0.088	mg/l	7440-39-3
D-3D	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-3D	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-3D	02/07/2020	Chromium	0.0066	0.108	mg/l	7440-47-3
D-3D	10/20/2020	Chromium	0.0063	0.108	mg/l	7440-47-3
D-3D	02/07/2020	Cobalt	0.00033	0.0008	mg/l	7440-48-4
D-3D	10/20/2020	Cobalt	0.00054	0.0008	mg/l	7440-48-4
D-3D	02/07/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-3D	10/20/2020	Fluoride	0.070	0.25	mg/l	16984-48-8
D-3D	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-3D	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-3D	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-3D	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-3D	02/07/2020	Radium (226)	< 0.126	0.372	pci/l	13982-63-3
D-3D	10/20/2020	Radium (226)	< 0.294	0.372	pci/l	13982-63-3
D-3D	02/07/2020	Radium 228	< 0.418	1.3	pci/l	15262-20-1
D-3D	10/20/2020	Radium 228	< 0.486	1.3	pci/l	15262-20-1
D-3D	02/07/2020	Total Radium 226/228	< 0.418	1.672	pci/l	425
D-3D	10/20/2020	Total Radium 226/228	< 0.486	1.672	pci/l	425
D-3D	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-3D	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-3S	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-3S	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-3S	02/07/2020	Barium	0.064	0.088	mg/l	7440-39-3
D-3S	10/20/2020	Barium	0.088	0.088	mg/l	7440-39-3
D-3S	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-3S	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9

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D-3S	02/07/2020	Chromium	0.0074	0.108	mg/l	7440-47-3
D-3S	10/20/2020	Chromium	0.020	0.108	mg/l	7440-47-3
D-3S	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-3S	10/20/2020	Cobalt	0.00030	0.0008	mg/l	7440-48-4
D-3S	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-3S	10/20/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-3S	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-3S	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-3S	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-3S	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-3S	02/07/2020	Radium (226)	< 0.144	0.372	pci/l	13982-63-3
D-3S	10/20/2020	Radium (226)	< 0.342	0.372	pci/l	13982-63-3
D-3S	02/07/2020	Radium 228	< 0.484	1.3	pci/l	15262-20-1
D-3S	10/20/2020	Radium 228	< 0.534	1.3	pci/l	15262-20-1
D-3S	02/07/2020	Total Radium 226/228	< 0.484	1.672	pci/l	425
D-3S	10/20/2020	Total Radium 226/228	< 0.534	1.672	pci/l	425
D-3S	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-3S	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-4D	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-4D	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-4D	02/07/2020	Barium	0.075	0.088	mg/l	7440-39-3
D-4D	10/20/2020	Barium	0.068	0.088	mg/l	7440-39-3
D-4D	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-4D	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-4D	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4D	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4D	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-4D	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-4D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-4D	10/20/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-4D	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-4D	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-4D	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-4D	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-4D	02/07/2020	Radium (226)	< 0.152	0.372	pci/l	13982-63-3
D-4D	10/20/2020	Radium (226)	< 0.297	0.372	pci/l	13982-63-3
D-4D	02/07/2020	Radium 228	< 0.365	1.3	pci/l	15262-20-1
D-4D	10/20/2020	Radium 228	< 0.562	1.3	pci/l	15262-20-1
D-4D	02/07/2020	Total Radium 226/228	< 0.365	1.672	pci/l	425
D-4D	10/20/2020	Total Radium 226/228	< 0.562	1.672	pci/l	425
D-4D	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-4D	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0

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D-4S	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-4S	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-4S	02/07/2020	Barium	0.066	0.088	mg/l	7440-39-3
D-4S	10/20/2020	Barium	0.077	0.088	mg/l	7440-39-3
D-4S	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-4S	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-4S	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4S	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4S	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-4S	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-4S	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-4S	10/20/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-4S	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-4S	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-4S	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-4S	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-4S	02/07/2020	Radium (226)	< 0.102	0.372	pci/l	13982-63-3
D-4S	10/20/2020	Radium (226)	< 0.289	0.372	pci/l	13982-63-3
D-4S	02/07/2020	Radium 228	0.424	1.3	pci/l	15262-20-1
D-4S	10/20/2020	Radium 228	< 0.578	1.3	pci/l	15262-20-1
D-4S	02/07/2020	Total Radium 226/228	0.424	1.672	pci/l	425
D-4S	10/20/2020	Total Radium 226/228	< 0.578	1.672	pci/l	425
D-4S	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-4S	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-5D	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-5D	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-5D	02/07/2020	Barium	0.055	0.088	mg/l	7440-39-3
D-5D	10/20/2020	Barium	0.059	0.088	mg/l	7440-39-3
D-5D	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-5D	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-5D	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-5D	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-5D	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-5D	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-5D	02/07/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-5D	10/20/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
D-5D	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-5D	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-5D	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-5D	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-5D	02/07/2020	Radium (226)	< 0.128	0.372	pci/l	13982-63-3
D-5D	10/20/2020	Radium (226)	< 0.334	0.372	pci/l	13982-63-3

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D-5D	02/07/2020	Radium 228	< 0.371	1.3	pci/l	15262-20-1
D-5D	10/20/2020	Radium 228	< 0.471	1.3	pci/l	15262-20-1
D-5D	02/07/2020	Total Radium 226/228	< 0.371	1.672	pci/l	425
D-5D	10/20/2020	Total Radium 226/228	< 0.471	1.672	pci/l	425
D-5D	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-5D	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-5S2	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-5S2	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-5S2	02/07/2020	Barium	**0.097**	0.088	mg/l	7440-39-3
D-5S2	10/20/2020	Barium	0.063	0.088	mg/l	7440-39-3
D-5S2	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-5S2	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-5S2	02/07/2020	Chromium	0.0051	0.108	mg/l	7440-47-3
D-5S2	10/20/2020	Chromium	0.011	0.108	mg/l	7440-47-3
D-5S2	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-5S2	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-5S2	02/07/2020	Fluoride	0.050	0.25	mg/l	16984-48-8
D-5S2	10/20/2020	Fluoride	0.060	0.25	mg/l	16984-48-8
D-5S2	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-5S2	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-5S2	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-5S2	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-5S2	02/07/2020	Radium (226)	< 0.126	0.372	pci/l	13982-63-3
D-5S2	10/20/2020	Radium (226)	< 0.345	0.372	pci/l	13982-63-3
D-5S2	02/07/2020	Radium 228	< 0.496	1.3	pci/l	15262-20-1
D-5S2	10/20/2020	Radium 228	0.629	1.3	pci/l	15262-20-1
D-5S2	02/07/2020	Total Radium 226/228	< 0.496	1.672	pci/l	425
D-5S2	10/20/2020	Total Radium 226/228	0.629	1.672	pci/l	425
D-5S2	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-5S2	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-8	10/20/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-8	10/20/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-8	02/07/2020	Barium	0.13	0.088	mg/l	7440-39-3
D-8	10/20/2020	Barium	0.082	0.088	mg/l	7440-39-3
D-8	10/20/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-8	10/20/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-8	02/07/2020	Chromium	0.021	0.108	mg/l	7440-47-3
D-8	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-8	02/07/2020	Cobalt	**0.0019**	0.0008	mg/l	7440-48-4
D-8	10/20/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-8	02/07/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
D-8	10/20/2020	Fluoride	0.11	0.25	mg/l	16984-48-8

Table 3

Groundwater Analytical Data
Appendix IV

Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
D-8	10/20/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-8	10/20/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-8	10/20/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-8	10/20/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-8	02/07/2020	Radium (226)	< 0.190	0.372	pci/l	13982-63-3
D-8	10/20/2020	Radium (226)	< 0.285	0.372	pci/l	13982-63-3
D-8	02/07/2020	Radium 228	0.766	1.3	pci/l	15262-20-1
D-8	10/20/2020	Radium 228	< 0.470	1.3	pci/l	15262-20-1
D-8	02/07/2020	Total Radium 226/228	0.766	1.672	pci/l	425
D-8	10/20/2020	Total Radium 226/228	< 0.470	1.672	pci/l	425
D-8	10/20/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-8	10/20/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
D-9	10/21/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
D-9	10/21/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
D-9	02/07/2020	Barium	0.059	0.088	mg/l	7440-39-3
D-9	10/21/2020	Barium	0.071	0.088	mg/l	7440-39-3
D-9	10/21/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
D-9	10/21/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
D-9	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-9	10/21/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-9	02/07/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
D-9	10/21/2020	Cobalt	0.00034	0.0008	mg/l	7440-48-4
D-9	02/07/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-9	10/21/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
D-9	10/21/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
D-9	10/21/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
D-9	10/21/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
D-9	10/21/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
D-9	02/07/2020	Radium (226)	< 0.127	0.372	pci/l	13982-63-3
D-9	10/21/2020	Radium (226)	< 0.271	0.372	pci/l	13982-63-3
D-9	02/07/2020	Radium 228	< 0.453	1.3	pci/l	15262-20-1
D-9	10/21/2020	Radium 228	< 0.547	1.3	pci/l	15262-20-1
D-9	02/07/2020	Total Radium 226/228	< 0.453	1.672	pci/l	425
D-9	10/21/2020	Total Radium 226/228	< 0.547	1.672	pci/l	425
D-9	10/21/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
D-9	10/21/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
U-4D	10/19/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
U-4D	10/19/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
U-4D	02/06/2020	Barium	0.041	0.088	mg/l	7440-39-3
U-4D	10/19/2020	Barium	0.043	0.088	mg/l	7440-39-3
U-4D	10/19/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
U-4D	10/19/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9

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Groundwater Analytical Data
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Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
U-4D	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-4D	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-4D	02/06/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-4D	10/19/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-4D	02/06/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-4D	10/19/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
U-4D	10/19/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
U-4D	10/19/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
U-4D	10/19/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
U-4D	10/19/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
U-4D	02/06/2020	Radium (226)	< 0.100	0.372	pci/l	13982-63-3
U-4D	10/19/2020	Radium (226)	< 0.301	0.372	pci/l	13982-63-3
U-4D	02/06/2020	Radium 228	< 0.402	1.3	pci/l	15262-20-1
U-4D	10/19/2020	Radium 228	< 0.593	1.3	pci/l	15262-20-1
U-4D	02/06/2020	Total Radium 226/228	< 0.402	1.672	pci/l	425
U-4D	10/19/2020	Total Radium 226/228	< 0.593	1.672	pci/l	425
U-4D	10/19/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
U-4D	10/19/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
U-4S	10/19/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
U-4S	10/19/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
U-4S	02/06/2020	Barium	0.037	0.088	mg/l	7440-39-3
U-4S	10/19/2020	Barium	0.038	0.088	mg/l	7440-39-3
U-4S	10/19/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
U-4S	10/19/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
U-4S	02/06/2020	Chromium	0.014	0.108	mg/l	7440-47-3
U-4S	10/19/2020	Chromium	0.011	0.108	mg/l	7440-47-3
U-4S	02/06/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-4S	10/19/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-4S	02/06/2020	Fluoride	0.080	0.25	mg/l	16984-48-8
U-4S	10/19/2020	Fluoride	0.090	0.25	mg/l	16984-48-8
U-4S	10/19/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
U-4S	10/19/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
U-4S	10/19/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
U-4S	10/19/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
U-4S	02/06/2020	Radium (226)	< 0.120	0.372	pci/l	13982-63-3
U-4S	10/19/2020	Radium (226)	< 0.276	0.372	pci/l	13982-63-3
U-4S	02/06/2020	Radium 228	< 0.402	1.3	pci/l	15262-20-1
U-4S	10/19/2020	Radium 228	< 0.463	1.3	pci/l	15262-20-1
U-4S	02/06/2020	Total Radium 226/228	< 0.402	1.672	pci/l	425
U-4S	10/19/2020	Total Radium 226/228	< 0.463	1.672	pci/l	425
U-4S	10/19/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
U-4S	10/19/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0

Table 3

Groundwater Analytical Data
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Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
U-5D	10/19/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
U-5D	10/19/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
U-5D	02/06/2020	Barium	0.058	0.088	mg/l	7440-39-3
U-5D	10/19/2020	Barium	0.060	0.088	mg/l	7440-39-3
U-5D	10/19/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
U-5D	10/19/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
U-5D	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5D	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5D	02/06/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-5D	10/19/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-5D	02/06/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5D	10/19/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5D	10/19/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
U-5D	10/19/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
U-5D	10/19/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
U-5D	10/19/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
U-5D	02/06/2020	Radium (226)	< 0.117	0.372	pci/l	13982-63-3
U-5D	10/19/2020	Radium (226)	< 0.270	0.372	pci/l	13982-63-3
U-5D	02/06/2020	Radium 228	0.443	1.3	pci/l	15262-20-1
U-5D	10/19/2020	Radium 228	< 0.543	1.3	pci/l	15262-20-1
U-5D	02/06/2020	Total Radium 226/228	0.443	1.672	pci/l	425
U-5D	10/19/2020	Total Radium 226/228	< 0.543	1.672	pci/l	425
U-5D	10/19/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
U-5D	10/19/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0
U-5S	10/19/2020	Antimony	< 0.001	0.001	mg/l	7440-36-0
U-5S	10/19/2020	Arsenic	< 0.001	0.001	mg/l	7440-38-2
U-5S	02/06/2020	Barium	0.054	0.088	mg/l	7440-39-3
U-5S	10/19/2020	Barium	0.069	0.088	mg/l	7440-39-3
U-5S	10/19/2020	Beryllium	< 0.0007	0.0007	mg/l	7440-41-7
U-5S	10/19/2020	Cadmium	< 0.0005	0.0005	mg/l	7440-43-9
U-5S	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5S	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5S	02/06/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-5S	10/19/2020	Cobalt	< 0.0003	0.0008	mg/l	7440-48-4
U-5S	02/06/2020	Fluoride	0.11	0.25	mg/l	16984-48-8
U-5S	10/19/2020	Fluoride	0.10	0.25	mg/l	16984-48-8
U-5S	10/19/2020	Lead	< 0.01	0.01	mg/l	7439-92-1
U-5S	10/19/2020	Lithium	< 0.03	0.03	mg/l	7439-93-2
U-5S	10/19/2020	Mercury	< 0.0002	0.0002	mg/l	7439-97-6
U-5S	10/19/2020	Molybdenum	< 0.001	0.001	mg/l	7439-98-7
U-5S	02/06/2020	Radium (226)	< 0.115	0.372	pci/l	13982-63-3
U-5S	10/19/2020	Radium (226)	< 0.295	0.372	pci/l	13982-63-3

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Groundwater Analytical Data
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Location	Date	Parameter	Result	Background Threshold Values (BTV)	Units	CAS #
U-5S	02/06/2020	Radium 228	< 0.358	1.3	pci/l	15262-20-1
U-5S	10/19/2020	Radium 228	< 0.502	1.3	pci/l	15262-20-1
U-5S	02/06/2020	Total Radium 226/228	< 0.358	1.672	pci/l	425
U-5S	10/19/2020	Total Radium 226/228	< 0.502	1.672	pci/l	425
U-5S	10/19/2020	Selenium	< 0.0010	0.0017	mg/l	7782-49-2
U-5S	10/19/2020	Thallium	< 0.0002	0.0002	mg/l	7440-28-0

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

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SKB Rosemount Industrial Waste Facility
13425 Courthouse Boulevard
Rosemount, Minnesota

Table 4

Well Stabilization Data

Well ID	Measurement Date	Purge Rate l/min	Field pH	Field Specific Conductivity umhos/cm	Field Temp deg c
D-1D	2/7/20 11:50 AM	1	8.49	730	10.49
D-1D	2/7/20 12:00 AM	1	8.49	729	10.52
D-1D	2/7/20 12:10 PM	1	8.51	727	10.51
D-1D	2/7/20 12:20 PM	1	8.53	725	10.50
D-1D	10/20/20 7:45 AM	1	8.91	824	9.87
D-1D	10/20/20 8:05 AM	1	8.90	805	10.77
D-1D	10/20/20 8:25 AM	1	9.07	801	10.74
D-1D	10/20/20 8:35 AM	1	8.98	806	10.80
D-1S	2/7/20 11:50 AM	1	8.47	686	9.34
D-1S	2/7/20 11:55 AM	1	8.16	812	10.93
D-1S	2/7/20 12:00 PM	1	8.04	821	11.09
D-1S	2/7/20 12:05 PM	1	8.00	817	11.21
D-1S	10/20/20 7:45 AM	1	8.95	718	8.12
D-1S	10/20/20 7:55 AM	1	8.77	871	10.24
D-1S	10/20/20 8:05 AM	1	8.79	859	10.74
D-1S	10/20/20 8:15 AM	1	8.87	852	11.01
D-2D	2/7/20 12:45 PM	1	8.44	362	9.67
D-2D	2/7/20 12:55 PM	1	8.42	361	9.67
D-2D	2/7/20 1:05 PM	1	8.44	361	9.67
D-2D	2/7/20 1:15 PM	1	8.44	361	9.67
D-2D	10/20/20 9:00 AM	1	8.92	849	9.46
D-2D	10/20/20 9:20 AM	1	8.89	857	9.38
D-2D	10/20/20 9:40 AM	1	8.71	855	9.57
D-2D	10/20/20 9:50 AM	1	8.82	852	9.62
D-2S	2/7/20 12:45 PM	1	8.35	802	9.69
D-2S	2/7/20 12:50 PM	1	8.10	823	9.99
D-2S	2/7/20 1:00 PM	1	8.12	827	9.97
D-2S	2/7/20 1:05 PM	1	8.16	827	9.93
D-2S	10/20/20 9:00 AM	1	8.81	709	9.71
D-2S	10/20/20 9:10 AM	1	8.69	882	9.70
D-2S	10/20/20 9:20 AM	1	8.80	884	9.62
D-2S	10/20/20 9:30 AM	1	8.75	882	9.70
D-3D	2/7/20 11:10 AM	1	8.30	940	9.90
D-3D	2/7/20 11:20 AM	1	8.21	942	9.86
D-3D	2/7/20 11:30 AM	1	8.27	942	9.84
D-3D	2/7/20 11:40 AM	1	8.22	942	9.85
D-3D	10/20/20 10:15 AM	1	8.78	1050	9.25
D-3D	10/20/20 10:35 AM	1	8.88	1050	9.25
D-3D	10/20/20 10:55 AM	1	8.89	1050	9.25
D-3D	10/20/20 11:05 AM	1	8.90	1050	9.25
D-3S	2/7/20 11:10 AM	1	8.50	976	10.02
D-3S	2/7/20 11:15 AM	1	8.22	1080	10.29
D-3S	2/7/20 11:20 AM	1	8.21	1070	10.25
D-3S	2/7/20 11:25 AM	1	8.22	1070	10.24
D-3S	10/20/20 10:15 AM	1	8.68	1200	9.45
D-3S	10/20/20 10:25 AM	1	8.74	1630	9.61
D-3S	10/20/20 10:35 AM	1	8.79	1610	9.62
D-3S	10/20/20 10:45 AM	1	8.78	1610	9.64

Table 4

Well Stabilization Data

Well ID	Measurement Date	Purge Rate l/min	Field pH	Field Specific Conductivity umhos/cm	Field Temp deg c
D-4D	2/7/20 1:35 PM	1	8.30	842	10.82
D-4D	2/7/20 1:45 PM	1	8.28	841	10.82
D-4D	2/7/20 1:55 PM	1	8.28	842	10.80
D-4D	2/7/20 2:05 PM	1	8.27	841	10.83
D-4D	10/20/20 1:10 PM	1	8.93	916	10.27
D-4D	10/20/20 1:30 PM	1	8.93	917	10.26
D-4D	10/20/20 1:50 PM	1	8.92	918	10.25
D-4D	10/20/20 2:00 PM	1	8.91	918	10.25
D-4S	2/7/20 1:35 PM	1	8.42	836	9.74
D-4S	2/7/20 1:40 PM	1	8.31	834	10.28
D-4S	2/7/20 1:45 PM	1	8.24	833	10.25
D-4S	2/7/20 2:50 PM	1	8.30	834	10.23
D-4S	10/20/20 1:10 PM	1	8.72	973	9.10
D-4S	10/20/20 1:20 PM	1	8.82	953	9.54
D-4S	10/20/20 1:30 PM	1	8.79	945	9.68
D-4S	10/20/20 1:40 PM	1	8.78	941	9.88
D-5D	2/7/20 10:30 AM	1	8.24	131	9.72
D-5D	2/7/20 10:40 AM	1	8.22	156	9.80
D-5D	2/7/20 10:50 AM	1	8.20	152	9.87
D-5D	2/7/20 11:00 AM	1	8.18	152	9.87
D-5D	10/20/20 11:30 AM	1	8.87	999	9.22
D-5D	10/20/20 11:50 AM	1	8.91	933	8.97
D-5D	10/20/20 12:10 PM	1	8.92	927	8.97
D-5D	10/20/20 12:30 PM	1	8.92	926	8.97
D-5S2	2/7/20 10:30 AM	1	8.83	1260	10.55
D-5S2	2/7/20 10:35 AM	1	8.71	1310	10.44
D-5S2	2/7/20 10:40 AM	1	8.50	1320	10.36
D-5S2	2/7/20 10:45 AM	1	8.45	1330	10.25
D-5S2	10/20/20 11:30 AM	1	8.55	1050	9.26
D-5S2	10/20/20 11:35 AM	1	8.84	1010	9.41
D-5S2	10/20/20 11:40 PM	1	8.87	1010	9.44
D-5S2	10/20/20 11:45 PM	1	8.75	1010	9.50
D-8	2/7/20 2:50 PM	1	8.38	885	9.15
D-8	2/7/20 2:55 PM	1	8.46	890	9.00
D-8	2/7/20 3:00 PM	1	8.42	892	8.99
D-8	2/7/20 3:05 PM	1	8.46	891	9.00
D-8	10/21/20 9:30 AM	1	9.10	871	6.59
D-8	10/21/20 9:45 AM	1	9.12	987	8.30
D-8	10/21/20 10:00 AM	1	9.02	969	9.45
D-8	10/21/20 10:15 AM	1	9.12	965	9.50
D-9	2/7/20 3:15 PM	1	8.15	787	10.15
D-9	2/7/20 3:20 PM	1	7.77	762	10.88
D-9	2/7/20 3:25 PM	1	7.76	757	10.87
D-9	2/7/20 3:30 PM	1	7.74	759	10.87
D-9	10/21/20 10:35 AM	1	9.06	734	10.60
D-9	10/21/20 10:55 AM	1	9.09	824	10.40
D-9	10/21/20 11:15 AM	1	8.93	907	10.09
D-9	10/21/20 11:25 AM	1	8.99	926	10.29

Table 4

Well Stabilization Data

Well ID	Measurement Date	Purge Rate l/min	Field pH	Field Specific Conductivity umhos/cm	Field Temp deg c
U-4D	2/6/20 1:15 PM	1	9.00	795	9.46
U-4D	2/6/20 1:25 PM	1	8.94	795	9.50
U-4D	2/6/20 1:35 PM	1	8.85	794	9.52
U-4D	2/6/20 1:45 PM	1	8.85	794	9.52
U-4D	10/19/20 11:00 AM	1	8.86	859	8.68
U-4D	10/19/20 11:30 AM	1	8.96	860	8.66
U-4D	10/19/20 12:00 AM	1	8.96	860	8.66
U-4D	10/19/20 12:25 AM	1	8.97	860	8.66
U-4S	2/6/20 1:15 PM	1	8.27	742	9.91
U-4S	2/6/20 1:20 PM	1	7.72	725	10.21
U-4S	2/6/20 1:25 PM	1	7.70	735	10.05
U-4S	2/6/20 1:30 PM	1	7.68	737	10.10
U-4S	10/19/20 11:00 AM	1	8.71	809	8.92
U-4S	10/19/20 11:05 AM	1	8.50	796	8.82
U-4S	10/19/20 11:10 AM	1	8.56	798	8.78
U-4S	10/19/20 11:15 AM	1	8.65	798	8.84
U-5D	2/6/20 3:35 PM	1	8.66	753	9.33
U-5D	2/6/20 3:45 PM	1	8.65	753	9.31
U-5D	2/6/20 3:55 PM	1	8.62	753	9.31
U-5D	2/6/20 4:05 PM	1	8.62	754	9.28
U-5D	10/19/20 1:30 PM	1	9.02	804	8.67
U-5D	10/19/20 1:45 PM	1	9.02	804	8.75
U-5D	10/19/20 2:00 PM	1	9.03	804	8.78
U-5D	10/19/20 2:15 PM	1	9.02	804	8.79
U-5S	2/6/20 3:35 PM	1	8.82	167	8.95
U-5S	2/6/20 3:40 PM	1	8.84	423	9.55
U-5S	2/6/20 3:45 PM	1	8.77	493	9.59
U-5S	2/6/20 3:50 PM	1	8.79	445	9.58
U-5S	10/19/20 1:30 PM	1	8.56	733	9.73
U-5S	10/19/20 1:35 PM	1	8.67	830	10.34
U-5S	10/19/20 1:40 PM	1	8.78	834	10.37
U-5S	10/19/20 1:45 PM	1	8.81	838	10.43

Table 5

Background Threshold Values

Appendix III to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Boron	0.325	mg/l	7440-42-8
Calcium	131	mg/l	7440-70-2
Chloride	113	mg/l	16887-00-6
Fluoride	0.25	mg/l	15984-48-8
pH	Lower 7.1 Upper 8.2	pH UNITS	PH
Sulfate as SO4	67.3	mg/l	14808-79-8
Total Dissolved Solids	711	mg/l	TDS

Appendix IV to Part 257

Parameter	Background Threshold Value (BTV)	Units	CAS #
Antimony	0.001	mg/l	7440-36-0
Arsenic	0.001	mg/l	7440-38-2
Barium	0.088	mg/l	7440-39-3
Beryllium	0.0007	mg/l	7440-41-7
Cadmium	0.0005	mg/l	7440-43-9
Chromium	0.108	mg/l	7440-47-3
Cobalt	0.0008	mg/l	7440-48-4
Fluoride	0.25	mg/l	15984-48-8
Lead	0.01	mg/l	7439-92-1
Lithium	0.03	mg/l	7439-93-2
Mercury	0.0002	mg/l	7439-97-6
Molybdenum	0.001	mg/l	7439-98-7
Radium 226	0.372	pci/l	13982-63-3
Radium 228	1.3	pci/l	15262-20-1
Total Radium 226/228	1.672	pci/l	--
Selenium	0.0017	mg/l	7782-49-2
Thallium	0.0002	mg/l	7440-28-0

Values are in milligrams per liter (mg/l) or picocuries per liter (pci/l)

Table 6

2020 Groundwater Protection Standards

Appendix IV to Part 257

Parameter	Background Threshold Value (BTV)	EPA Maximum Contaminate Level (MCL)	Groundwater Protection Standard (GPS)	Units	CAS #
Antimony	0.001	0.006	0.006	mg/l	7440-36-0
Arsenic	0.001	0.010	0.010	mg/l	7440-38-2
Barium	0.088	2	2	mg/l	7440-39-3
Beryllium	0.0007	0.004	0.004	mg/l	7440-41-7
Cadmium	0.0005	0.005	0.005	mg/l	7440-43-9
Chromium	0.108	0.1	0.108	mg/l	7440-47-3
Cobalt	0.0008	0.006	0.006	mg/l	7440-48-4
Fluoride	0.25	4	4	mg/l	15984-48-8
Lead	0.01	0.015	0.015	mg/l	7439-92-1
Lithium	0.03	0.04	0.04	mg/l	7439-93-2
Mercury	0.0002	0.002	0.002	mg/l	7439-97-6
Molybdenum	0.001	0.1	0.1	mg/l	7439-98-7
Radium 226	0.372	--	--	pci/l	13982-63-3
Radium 228	1.3	--	--	pci/l	15262-20-1
Radium 226/228	1.672	5	5	pci/l	EDF-206
Selenium	0.0017	0.05	0.05	mg/l	7782-49-2
Thallium	0.0002	0.002	0.002	mg/l	7440-28-0

Results in milligrams per liter (mg/l) or pecocuries per liter (pci/l)

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-1D	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-1D	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-1D	02/07/2020	Barium	0.047	2	mg/l	7440-39-3
D-1D	10/20/2020	Barium	0.050	2	mg/l	7440-39-3
D-1D	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-1D	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-1D	02/07/2020	Chromium	0.0045	0.108	mg/l	7440-47-3
D-1D	10/20/2020	Chromium	0.0067	0.108	mg/l	7440-47-3
D-1D	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-1D	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-1D	02/07/2020	Fluoride	0.080	4	mg/l	16984-48-8
D-1D	10/20/2020	Fluoride	0.070	4	mg/l	16984-48-8
D-1D	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-1D	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-1D	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-1D	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-1D	02/07/2020	Radium (226)	< 0.151	--	pci/l	13982-63-3
D-1D	10/20/2020	Radium (226)	< 0.305	--	pci/l	13982-63-3
D-1D	02/07/2020	Radium 228	< 0.432	--	pci/l	15262-20-1
D-1D	10/20/2020	Radium 228	0.543	--	pci/l	15262-20-1
D-1D	02/07/2020	Total Radium 226/228	< 0.432	5	pci/l	425
D-1D	10/20/2020	Total Radium 226/228	0.543	5	pci/l	425
D-1D	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-1D	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-1S	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-1S	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-1S	02/07/2020	Barium	0.055	2	mg/l	7440-39-3
D-1S	10/20/2020	Barium	0.055	2	mg/l	7440-39-3
D-1S	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-1S	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-1S	02/07/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-1S	10/20/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-1S	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-1S	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-1S	02/07/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-1S	10/20/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-1S	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-1S	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-1S	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-1S	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-1S	02/07/2020	Radium (226)	< 0.132	--	pci/l	13982-63-3
D-1S	10/20/2020	Radium (226)	< 0.285	--	pci/l	13982-63-3

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-1S	02/07/2020	Radium 228	< 0.452	--	pci/l	15262-20-1
D-1S	10/20/2020	Radium 228	< 0.580	--	pci/l	15262-20-1
D-1S	02/07/2020	Total Radium 226/228	< 0.452	5	pci/l	425
D-1S	10/20/2020	Total Radium 226/228	< 0.580	5	pci/l	425
D-1S	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-1S	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-2D	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-2D	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-2D	02/07/2020	Barium	0.053	2	mg/l	7440-39-3
D-2D	10/20/2020	Barium	0.055	2	mg/l	7440-39-3
D-2D	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-2D	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-2D	02/07/2020	Chromium	< 0.004	0.108	mg/l	7440-47-3
D-2D	10/20/2020	Chromium	0.0044	0.108	mg/l	7440-47-3
D-2D	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-2D	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-2D	02/07/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-2D	10/20/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-2D	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-2D	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-2D	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-2D	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-2D	02/07/2020	Radium (226)	0.115	--	pci/l	13982-63-3
D-2D	10/20/2020	Radium (226)	< 0.372	--	pci/l	13982-63-3
D-2D	02/07/2020	Radium 228	< 0.419	--	pci/l	15262-20-1
D-2D	10/20/2020	Radium 228	0.884	--	pci/l	15262-20-1
D-2D	02/07/2020	Total Radium 226/228	0.115	5	pci/l	425
D-2D	10/20/2020	Total Radium 226/228	0.884	5	pci/l	425
D-2D	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-2D	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-2S	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-2S	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-2S	02/07/2020	Barium	0.051	2	mg/l	7440-39-3
D-2S	10/20/2020	Barium	0.050	2	mg/l	7440-39-3
D-2S	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-2S	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-2S	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-2S	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-2S	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-2S	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-2S	02/07/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-2S	10/20/2020	Fluoride	< 0.050	4	mg/l	16984-48-8

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-2S	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-2S	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-2S	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-2S	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-2S	02/07/2020	Radium (226)	< 0.147	--	pci/l	13982-63-3
D-2S	10/20/2020	Radium (226)	< 0.368	--	pci/l	13982-63-3
D-2S	02/07/2020	Radium 228	< 0.442	--	pci/l	15262-20-1
D-2S	10/20/2020	Radium 228	< 0.747	--	pci/l	15262-20-1
D-2S	02/07/2020	Total Radium 226/228	< 0.442	5	pci/l	425
D-2S	10/20/2020	Total Radium 226/228	< 0.747	5	pci/l	425
D-2S	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-2S	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-3D	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-3D	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-3D	02/07/2020	Barium	0.061	2	mg/l	7440-39-3
D-3D	10/20/2020	Barium	0.065	2	mg/l	7440-39-3
D-3D	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-3D	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-3D	02/07/2020	Chromium	0.0066	0.108	mg/l	7440-47-3
D-3D	10/20/2020	Chromium	0.0063	0.108	mg/l	7440-47-3
D-3D	02/07/2020	Cobalt	0.00033	0.006	mg/l	7440-48-4
D-3D	10/20/2020	Cobalt	0.00054	0.006	mg/l	7440-48-4
D-3D	02/07/2020	Fluoride	0.070	4	mg/l	16984-48-8
D-3D	10/20/2020	Fluoride	0.070	4	mg/l	16984-48-8
D-3D	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-3D	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-3D	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-3D	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-3D	02/07/2020	Radium (226)	< 0.126	--	pci/l	13982-63-3
D-3D	10/20/2020	Radium (226)	< 0.294	--	pci/l	13982-63-3
D-3D	02/07/2020	Radium 228	< 0.418	--	pci/l	15262-20-1
D-3D	10/20/2020	Radium 228	< 0.486	--	pci/l	15262-20-1
D-3D	02/07/2020	Total Radium 226/228	< 0.418	5	pci/l	425
D-3D	10/20/2020	Total Radium 226/228	< 0.486	5	pci/l	425
D-3D	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-3D	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-3S	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-3S	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-3S	02/07/2020	Barium	0.064	2	mg/l	7440-39-3
D-3S	10/20/2020	Barium	0.088	2	mg/l	7440-39-3
D-3S	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-3S	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-3S	02/07/2020	Chromium	0.0074	0.108	mg/l	7440-47-3
D-3S	10/20/2020	Chromium	0.020	0.108	mg/l	7440-47-3
D-3S	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-3S	10/20/2020	Cobalt	0.00030	0.006	mg/l	7440-48-4
D-3S	02/07/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-3S	10/20/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-3S	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-3S	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-3S	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-3S	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-3S	02/07/2020	Radium (226)	< 0.144	--	pci/l	13982-63-3
D-3S	10/20/2020	Radium (226)	< 0.342	--	pci/l	13982-63-3
D-3S	02/07/2020	Radium 228	< 0.484	--	pci/l	15262-20-1
D-3S	10/20/2020	Radium 228	< 0.534	--	pci/l	15262-20-1
D-3S	02/07/2020	Total Radium 226/228	< 0.484	5	pci/l	425
D-3S	10/20/2020	Total Radium 226/228	< 0.534	5	pci/l	425
D-3S	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-3S	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-4D	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-4D	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-4D	02/07/2020	Barium	0.075	2	mg/l	7440-39-3
D-4D	10/20/2020	Barium	0.068	2	mg/l	7440-39-3
D-4D	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-4D	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-4D	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4D	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4D	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-4D	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-4D	02/07/2020	Fluoride	0.080	4	mg/l	16984-48-8
D-4D	10/20/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-4D	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-4D	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-4D	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-4D	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-4D	02/07/2020	Radium (226)	< 0.152	--	pci/l	13982-63-3
D-4D	10/20/2020	Radium (226)	< 0.297	--	pci/l	13982-63-3
D-4D	02/07/2020	Radium 228	< 0.365	--	pci/l	15262-20-1
D-4D	10/20/2020	Radium 228	< 0.562	--	pci/l	15262-20-1
D-4D	02/07/2020	Total Radium 226/228	< 0.365	5	pci/l	425
D-4D	10/20/2020	Total Radium 226/228	< 0.562	5	pci/l	425
D-4D	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-4D	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-4S	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-4S	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-4S	02/07/2020	Barium	0.066	2	mg/l	7440-39-3
D-4S	10/20/2020	Barium	0.077	2	mg/l	7440-39-3
D-4S	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-4S	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-4S	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4S	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-4S	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-4S	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-4S	02/07/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-4S	10/20/2020	Fluoride	0.080	4	mg/l	16984-48-8
D-4S	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-4S	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-4S	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-4S	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-4S	02/07/2020	Radium (226)	< 0.102	--	pci/l	13982-63-3
D-4S	10/20/2020	Radium (226)	< 0.289	--	pci/l	13982-63-3
D-4S	02/07/2020	Radium 228	0.424	--	pci/l	15262-20-1
D-4S	10/20/2020	Radium 228	< 0.578	--	pci/l	15262-20-1
D-4S	02/07/2020	Total Radium 226/228	0.424	5	pci/l	425
D-4S	10/20/2020	Total Radium 226/228	< 0.578	5	pci/l	425
D-4S	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-4S	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-5D	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-5D	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-5D	02/07/2020	Barium	0.055	2	mg/l	7440-39-3
D-5D	10/20/2020	Barium	0.059	2	mg/l	7440-39-3
D-5D	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-5D	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-5D	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-5D	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-5D	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-5D	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-5D	02/07/2020	Fluoride	0.080	4	mg/l	16984-48-8
D-5D	10/20/2020	Fluoride	0.080	4	mg/l	16984-48-8
D-5D	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-5D	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-5D	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-5D	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-5D	02/07/2020	Radium (226)	< 0.128	--	pci/l	13982-63-3
D-5D	10/20/2020	Radium (226)	< 0.334	--	pci/l	13982-63-3

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-5D	02/07/2020	Radium 228	< 0.371	--	pci/l	15262-20-1
D-5D	10/20/2020	Radium 228	< 0.471	--	pci/l	15262-20-1
D-5D	02/07/2020	Total Radium 226/228	< 0.371	5	pci/l	425
D-5D	10/20/2020	Total Radium 226/228	< 0.471	5	pci/l	425
D-5D	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-5D	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-5S2	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-5S2	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-5S2	02/07/2020	Barium	0.097	2	mg/l	7440-39-3
D-5S2	10/20/2020	Barium	0.063	2	mg/l	7440-39-3
D-5S2	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-5S2	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-5S2	02/07/2020	Chromium	0.0051	0.108	mg/l	7440-47-3
D-5S2	10/20/2020	Chromium	0.011	0.108	mg/l	7440-47-3
D-5S2	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-5S2	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-5S2	02/07/2020	Fluoride	0.050	4	mg/l	16984-48-8
D-5S2	10/20/2020	Fluoride	0.060	4	mg/l	16984-48-8
D-5S2	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-5S2	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-5S2	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-5S2	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-5S2	02/07/2020	Radium (226)	< 0.126	--	pci/l	13982-63-3
D-5S2	10/20/2020	Radium (226)	< 0.345	--	pci/l	13982-63-3
D-5S2	02/07/2020	Radium 228	< 0.496	--	pci/l	15262-20-1
D-5S2	10/20/2020	Radium 228	0.629	--	pci/l	15262-20-1
D-5S2	02/07/2020	Total Radium 226/228	< 0.496	5	pci/l	425
D-5S2	10/20/2020	Total Radium 226/228	0.629	5	pci/l	425
D-5S2	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-5S2	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-8	10/20/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-8	10/20/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-8	02/07/2020	Barium	0.13	2	mg/l	7440-39-3
D-8	10/20/2020	Barium	0.082	2	mg/l	7440-39-3
D-8	10/20/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-8	10/20/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-8	02/07/2020	Chromium	0.021	0.108	mg/l	7440-47-3
D-8	10/20/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-8	02/07/2020	Cobalt	0.0019	0.006	mg/l	7440-48-4
D-8	10/20/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-8	02/07/2020	Fluoride	0.11	4	mg/l	16984-48-8
D-8	10/20/2020	Fluoride	0.11	4	mg/l	16984-48-8

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
D-8	10/20/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-8	10/20/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-8	10/20/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-8	10/20/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-8	02/07/2020	Radium (226)	< 0.190	--	pci/l	13982-63-3
D-8	10/20/2020	Radium (226)	< 0.285	--	pci/l	13982-63-3
D-8	02/07/2020	Radium 228	0.766	--	pci/l	15262-20-1
D-8	10/20/2020	Radium 228	< 0.470	--	pci/l	15262-20-1
D-8	02/07/2020	Total Radium 226/228	0.766	5	pci/l	425
D-8	10/20/2020	Total Radium 226/228	< 0.470	5	pci/l	425
D-8	10/20/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-8	10/20/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
D-9	10/21/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
D-9	10/21/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
D-9	02/07/2020	Barium	0.059	2	mg/l	7440-39-3
D-9	10/21/2020	Barium	0.071	2	mg/l	7440-39-3
D-9	10/21/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
D-9	10/21/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
D-9	02/07/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-9	10/21/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
D-9	02/07/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
D-9	10/21/2020	Cobalt	0.00034	0.006	mg/l	7440-48-4
D-9	02/07/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-9	10/21/2020	Fluoride	0.090	4	mg/l	16984-48-8
D-9	10/21/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
D-9	10/21/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
D-9	10/21/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
D-9	10/21/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
D-9	02/07/2020	Radium (226)	< 0.127	--	pci/l	13982-63-3
D-9	10/21/2020	Radium (226)	< 0.271	--	pci/l	13982-63-3
D-9	02/07/2020	Radium 228	< 0.453	--	pci/l	15262-20-1
D-9	10/21/2020	Radium 228	< 0.547	--	pci/l	15262-20-1
D-9	02/07/2020	Total Radium 226/228	< 0.453	5	pci/l	425
D-9	10/21/2020	Total Radium 226/228	< 0.547	5	pci/l	425
D-9	10/21/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
D-9	10/21/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
U-4D	10/19/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
U-4D	10/19/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
U-4D	02/06/2020	Barium	0.041	2	mg/l	7440-39-3
U-4D	10/19/2020	Barium	0.043	2	mg/l	7440-39-3
U-4D	10/19/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
U-4D	10/19/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
U-4D	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-4D	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-4D	02/06/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-4D	10/19/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-4D	02/06/2020	Fluoride	0.10	4	mg/l	16984-48-8
U-4D	10/19/2020	Fluoride	0.11	4	mg/l	16984-48-8
U-4D	10/19/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
U-4D	10/19/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
U-4D	10/19/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
U-4D	10/19/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
U-4D	02/06/2020	Radium (226)	< 0.100	--	pci/l	13982-63-3
U-4D	10/19/2020	Radium (226)	< 0.301	--	pci/l	13982-63-3
U-4D	02/06/2020	Radium 228	< 0.402	--	pci/l	15262-20-1
U-4D	10/19/2020	Radium 228	< 0.593	--	pci/l	15262-20-1
U-4D	02/06/2020	Total Radium 226/228	< 0.402	5	pci/l	425
U-4D	10/19/2020	Total Radium 226/228	< 0.593	5	pci/l	425
U-4D	10/19/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
U-4D	10/19/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
U-4S	10/19/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
U-4S	10/19/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
U-4S	02/06/2020	Barium	0.037	2	mg/l	7440-39-3
U-4S	10/19/2020	Barium	0.038	2	mg/l	7440-39-3
U-4S	10/19/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
U-4S	10/19/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
U-4S	02/06/2020	Chromium	0.014	0.108	mg/l	7440-47-3
U-4S	10/19/2020	Chromium	0.011	0.108	mg/l	7440-47-3
U-4S	02/06/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-4S	10/19/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-4S	02/06/2020	Fluoride	0.080	4	mg/l	16984-48-8
U-4S	10/19/2020	Fluoride	0.090	4	mg/l	16984-48-8
U-4S	10/19/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
U-4S	10/19/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
U-4S	10/19/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
U-4S	10/19/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
U-4S	02/06/2020	Radium (226)	< 0.120	--	pci/l	13982-63-3
U-4S	10/19/2020	Radium (226)	< 0.276	--	pci/l	13982-63-3
U-4S	02/06/2020	Radium 228	< 0.402	--	pci/l	15262-20-1
U-4S	10/19/2020	Radium 228	< 0.463	--	pci/l	15262-20-1
U-4S	02/06/2020	Total Radium 226/228	< 0.402	5	pci/l	425
U-4S	10/19/2020	Total Radium 226/228	< 0.463	5	pci/l	425
U-4S	10/19/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
U-4S	10/19/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
U-5D	10/19/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
U-5D	10/19/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
U-5D	02/06/2020	Barium	0.058	2	mg/l	7440-39-3
U-5D	10/19/2020	Barium	0.060	2	mg/l	7440-39-3
U-5D	10/19/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
U-5D	10/19/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
U-5D	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5D	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5D	02/06/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-5D	10/19/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-5D	02/06/2020	Fluoride	0.10	4	mg/l	16984-48-8
U-5D	10/19/2020	Fluoride	0.10	4	mg/l	16984-48-8
U-5D	10/19/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
U-5D	10/19/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
U-5D	10/19/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
U-5D	10/19/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
U-5D	02/06/2020	Radium (226)	< 0.117	--	pci/l	13982-63-3
U-5D	10/19/2020	Radium (226)	< 0.270	--	pci/l	13982-63-3
U-5D	02/06/2020	Radium 228	0.443	--	pci/l	15262-20-1
U-5D	10/19/2020	Radium 228	< 0.543	--	pci/l	15262-20-1
U-5D	02/06/2020	Total Radium 226/228	0.443	5	pci/l	425
U-5D	10/19/2020	Total Radium 226/228	< 0.543	5	pci/l	425
U-5D	10/19/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
U-5D	10/19/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0
U-5S	10/19/2020	Antimony	< 0.001	0.006	mg/l	7440-36-0
U-5S	10/19/2020	Arsenic	< 0.001	0.010	mg/l	7440-38-2
U-5S	02/06/2020	Barium	0.054	2	mg/l	7440-39-3
U-5S	10/19/2020	Barium	0.069	2	mg/l	7440-39-3
U-5S	10/19/2020	Beryllium	< 0.0007	0.004	mg/l	7440-41-7
U-5S	10/19/2020	Cadmium	< 0.0005	0.005	mg/l	7440-43-9
U-5S	02/06/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5S	10/19/2020	Chromium	< 0.0040	0.108	mg/l	7440-47-3
U-5S	02/06/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-5S	10/19/2020	Cobalt	< 0.0003	0.006	mg/l	7440-48-4
U-5S	02/06/2020	Fluoride	0.11	4	mg/l	16984-48-8
U-5S	10/19/2020	Fluoride	0.10	4	mg/l	16984-48-8
U-5S	10/19/2020	Lead	< 0.01	0.015	mg/l	7439-92-1
U-5S	10/19/2020	Lithium	< 0.03	0.04	mg/l	7439-93-2
U-5S	10/19/2020	Mercury	< 0.0002	0.002	mg/l	7439-97-6
U-5S	10/19/2020	Molybdenum	< 0.001	0.1	mg/l	7439-98-7
U-5S	02/06/2020	Radium (226)	< 0.115	--	pci/l	13982-63-3
U-5S	10/19/2020	Radium (226)	< 0.295	--	pci/l	13982-63-3

Table 7

**Groundwater Analytical Data vs.
Groundwater protections Standard**

Location	Date	Parameter	Result	Groundwater Protection Standard (GPS)	Units	CAS #
U-5S	02/06/2020	Radium 228	< 0.358	--	pci/l	15262-20-1
U-5S	10/19/2020	Radium 228	< 0.502	--	pci/l	15262-20-1
U-5S	02/06/2020	Total Radium 226/228	< 0.358	5	pci/l	425
U-5S	10/19/2020	Total Radium 226/228	< 0.502	5	pci/l	425
U-5S	10/19/2020	Selenium	< 0.0010	0.05	mg/l	7782-49-2
U-5S	10/19/2020	Thallium	< 0.0002	0.002	mg/l	7440-28-0

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

Appendix A – Field Data Sheets

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: Rockcrest
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/6/20
Well ID: U-45

Tubing Diameter (ID): 2 inches
Depth to Water: 10.74 ft, TOC
Depth to Bottom of Well: 34.36 ft, TOC
Feet of Water in Well: 23.62 ft
Volume of Water in Well: 3.86 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uS/cm)	Temperature (°F)	Purge Rate (L/min)
1	10.74	8.27	742	9.91	1
5	10.75	7.72	725	10.21	1
10	10.75	7.70	735	10.05	1
15	10.75	7.68	737	10.10	1

Purge Start Time: 13:15 Purge End Time: 13:30 Total Volume Purged: 4.0 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: A. Schildgen
Weather Conditions: 29°F sunny, 5-10 mph S
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: Racemount
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/6/20
Well ID: D-40

Tubing Diameter (ID): 2 inches
Depth to Water: 17.00 ft, TOC
Depth to Bottom of Well: 89.2 ft, TOC
Feet of Water in Well: 72.20 ft
Volume of Water in Well: 12.6 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ/mho)	Temperature (°F)	Purge Rate (L/min)
1	17.00	9.00	795	9.46	1
10	17.02	8.94	795	9.50	1
20	17.02	8.93	794	9.52	1
30	17.02	8.85	794	9.52	1

Purge Start Time: 13:15 Purge End Time: 13:45 Total Volume Purged: 13.0 gal

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

Weather Conditions: 29 °F, sunny, 5-10 mph S

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: Rosemount
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/6/20
Well ID: U-55

Tubing Diameter (ID): 2 inches
Depth to Water: 22.63 ft, TOC
Depth to Bottom of Well: 42.5 ft, TOC
Feet of Water in Well: 19.87 ft
Volume of Water in Well: 3.24 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u /cm)	Temperature (°F)	Purge Rate (L/min)
1	22.63	9.32	167	9.48	1
5	22.65	9.84	423	9.55	1
10	22.65	9.77	493	9.59	1
15	22.65	9.79	445	9.581	1

Purge Start Time: 15:35 Purge End Time: 15:50 Total Volume Purged: 3.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N-Schlagel
Weather Conditions:
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: Rockmont
Project Number: 1
Sampling Device: Dedicated Bladder Pump
Date: 2/6/20
Well ID: V-5D

Tubing Diameter (ID): 2 inches
Depth to Water: 26.32 ft, TOC
Depth to Bottom of Well: 101.54 ft, TOC
Feet of Water in Well: 75.22 ft
Volume of Water in Well: 12.26 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (mS/cm)	Temperature (°F)	Purge Rate (L/min)
1	26.32	9.66	753	9.33	1
10	26.35	9.65	753	9.31	1
20	26.35	9.62	753	9.31	1
30	26.35	9.62	754	9.29	1

Purge Start Time: 15:35 Purge End Time: 16:05 Total Volume Purged: 12.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlegel
Weather Conditions: 25 °F, partly cloudy 5-10 mph SW
Comments: DUP-1 collected

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemont
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/20
Well ID: D-552

Tubing Diameter (ID): 2 inches
Depth to Water: 103.88 ft, TOC
Depth to Bottom of Well: 121.81 ft, TOC
Feet of Water in Well: 17.95 ft
Volume of Water in Well: 2.93 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	103.86	8.83	1,260	10.55	1
5	103.88	8.71	1,310	10.44	1
10	103.88	8.50	1,320	10.36	1
15	103.88	8.45	1,330	10.25	1

Purge Start Time: 10:30 Purge End Time: 10:45 Total Volume Purged: 3.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: V. Santagel
Weather Conditions: 23 °F, cloudy, 0-5 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: GKB Rockwool
Project Number:
Sampling Device: Redi-Flo2 Bladder Pump
Date: 2/7/20
Well ID: D-5D

Tubing Diameter (ID): 2 inches
Depth to Water: 111.71 ft, TOC
Depth to Bottom of Well: 157.10 ft, TOC
Feet of Water in Well: 45.39 ft
Volume of Water in Well: 7.4 gal

Elapsed Time (min)	Depth to Water (ft. TOC)	pH (s.u.)	Specific Conductance (µ / mS)	Temperature (°F) °C	Purge Rate (L/min)
1	111.71	8.24	131	9.72	1
10	111.73	8.22	156	9.00	1
20	111.73	8.20	152	9.87	1
30	111.73	8.16	152	9.87	1

Purge Start Time: 10:30 Purge End Time: 11:00 Total Volume Purged: 7.5 gal
Approximate Purge Rate: 1L/min Purged/Sampled by: M-Schlegel
Weather Conditions: 23°F, cloudy, 0-5 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemont
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/20
Well ID: D-35

Tubing Diameter (ID): 2 inches
Depth to Water: 104.84 ft, TOC
Depth to Bottom of Well: 135.13 ft, TOC
Feet of Water in Well: 30.29 ft
Volume of Water in Well: 4.94 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µs/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	104.84	8.50	976	10.02	1
5	104.86	8.22	1,080	10.29	1
10	104.86	8.21	1,070	10.25	1
15	104.86	8.22	1,070	10.24	1

Purge Start Time: 11:10 Purge End Time: 11:25 Total Volume Purged: 5.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N-Schlegel
Weather Conditions: 23°F, cloudy, 0-5 mph N
Comments: DUP-2 collected

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Redevelopment
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 7/7/20
Well ID: D-3D

Tubing Diameter (ID): 2 inches
Depth to Water: 105.83 ft, TOC
Depth to Bottom of Well: 155.5 ft, TOC
Feet of Water in Well: 49.67 ft
Volume of Water in Well: 8.1 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (w / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	105.83	8.30	940	9.90	1
10	105.85	8.24	942	9.85	1
20	105.85	8.27	942	9.84	1
30	105.85	8.22	942	9.85	1

Purge Start Time: 11:10 Purge End Time: 11:40 Total Volume Purged: 8.5 gal
Approximate Purge Rate: 1L/min Purged/Sampled by: M. Schlageter
Weather Conditions: 73°F, cloudy 0-5 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: KB Basement
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/19
Well ID: D-15

Tubing Diameter (ID): 2 inches
Depth to Water: 117.43 ft, TOC
Depth to Bottom of Well: 135.97 ft, TOC
Feet of Water in Well: 18.54 ft
Volume of Water in Well: 3.02 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ / mho)	Temperature (°F) °C	Purge Rate (L/min)
1	117.43	8.47	686	9.34	1
5	117.45	8.16	812	10.93	1
10	117.45	8.04	821	11.09	1
15	117.45	8.00	817	11.21	1

Purge Start Time: 11:50 Purge End Time: 12:05 Total Volume Purged: 3.5 gal

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

Weather Conditions: 23°F, cloudy, 0-5 mph N

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemount
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/20
Well ID: D-10

Tubing Diameter (ID): 2 inches
Depth to Water: 114.35 ft, TOC
Depth to Bottom of Well: 164.5 ft, TOC
Feet of Water in Well: 50.15 ft
Volume of Water in Well: 8.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	114.35	8.49	730	10.49	1
10	114.37	8.49	729	10.52	1
20	114.37	8.51	727	10.51	1
30	114.37	8.53	725	10.50	1

Purge Start Time: 11:50 Purge End Time: 12:20 Total Volume Purged: 8.5 gal

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

Weather Conditions: 23 °F, cloudy, 0 - 5 mph N

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Replacement
Project Number:
Sampling Device: Dedicated Bladder pump
Date: 2/7/20
Well ID: D-25

Tubing Diameter (ID): 2 inches
Depth to Water: 112.56 ft, TOC
Depth to Bottom of Well: 134.78 ft, TOC
Feet of Water in Well: 22.22 ft
Volume of Water in Well: 3.62 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ / mho)	Temperature (°F) °C	Purge Rate (L/min)
1	112.56	8.35	902	9.69	1
5	112.58	8.10	923	9.99	1
10	112.58	8.12	927	9.97	1
15	112.58	8.16	927	9.93	1

Purge Start Time: 12:45 Purge End Time: 13:00 Total Volume Purged: 4.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Schlageter
Weather Conditions: 28°F, cloudy, 0 - 5 mph N
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Research
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/20
Well ID: D-2D

Tubing Diameter (ID): 2 inches
Depth to Water: 111.41 ft, TOC
Depth to Bottom of Well: 163.98 ft, TOC
Feet of Water in Well: 52.57 ft
Volume of Water in Well: 8.57 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	111.41	8.44	362	9.67	1
10	111.43	8.42	361	9.67	1
20	111.43	8.44	361	9.67	1
30	111.43	8.44	361	9.67	1

Purge Start Time: 12:45 Purge End Time: 13:15 Total Volume Purged: 9.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel
Weather Conditions: 26°F, cloudy, 0 - 5 mph W
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemount
Project Number:
Sampling Device: Dedicated Bladder pump
Date: 2/7/20
Well ID: D-45

Tubing Diameter (ID): 2 inches
Depth to Water: 99.87 ft, TOC
Depth to Bottom of Well: 120.4 ft, TOC
Feet of Water in Well: 20.53 ft
Volume of Water in Well: 3.35 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	99.87	8.42	836	9.74	1
5	99.99	8.31	834	10.28	1
10	99.99	8.24	833	10.25	1
15	99.99	8.30	834	10.23	1

Purge Start Time: 13:35 Purge End Time: 13:50 Total Volume Purged: 3.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlagel
Weather Conditions: 47°F, cloudy, 0-5 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Logan Airport
Project Number:
Sampling Device: ~~Sampling~~ Dedicated Bladder Pump
Date: 2/7/20
Well ID: D-40

Tubing Diameter (ID): 2 inches
Depth to Water: 99.92 ft, TOC
Depth to Bottom of Well: 138.7 ft, TOC
Feet of Water in Well: 38.78 ft
Volume of Water in Well: 6.32 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (~~u~~ m/cm)	Temperature (~~°F~~) °C	Purge Rate (L/min)
1	99.92	6.30	842	10.32	1
10	99.94	6.20	841	10.32	1
20	99.94	6.20	842	10.00	1
13	99.94	6.27	841	10.43	1

Purge Start Time: 13:35 Purge End Time: 14:05 Total Volume Purged: 6.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Sullivan
Weather Conditions: 27°F, cloudy, 0 - 5 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Rosmont
Project Number: Disposable Bailer
Sampling Device: ~~Dedicated Bladder~~
Date: 7/7/20
Well ID: D-7

Tubing Diameter (ID): 2 inches
Depth to Water: 99.25 ft, TOC
Depth to Bottom of Well: 107.5 ft, TOC
Feet of Water in Well: 8.25 ft
Volume of Water in Well: 1.35 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	99.25	7.68	1,240	9.68	1
10	99.99	7.68	1,240	9.68	1
20	101.27	7.68	1,240	9.68	1
30	103.58	7.69	1,240	9.68	1

Purge Start Time: 14:20 Purge End Time: 14:50 Total Volume Purged: 2.0 gal

Approximate Purge Rate: 1 L/min Purged/Sampled by: [illegible]

Weather Conditions: 27°F, cloudy 5-10 mph NW

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Rosemont
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 2/7/20
Well ID: P-8

Tubing Diameter (ID): 2 inches
Depth to Water: 103.96 ft, TOC
Depth to Bottom of Well: 130.1 ft, TOC
Feet of Water in Well: 26.14 ft
Volume of Water in Well: 4.26 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmho)	Temperature (°F) °C	Purge Rate (L/min)
1	103.96	8.38	885	9.15	1
5	103.98	8.46	890	9.00	1
10	103.98	8.42	892	8.95	1
15	103.98	8.46	891	9.00	1

Purge Start Time: 14:50 Purge End Time: 15:05 Total Volume Purged: 4.5 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: N. Schlegel
Weather Conditions: 24°F, cloudy, 0-5 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: Rockmount
Project Number:
Sampling Device: Dedicated Bladder Pump
Date: 7/6/20
Well ID: D-9

Tubing Diameter (ID): 2 inches
Depth to Water: 93.49 ft, TOC
Depth to Bottom of Well: 118.5 ft, TOC
Feet of Water in Well: 25.01 ft
Volume of Water in Well: 4.1 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ/mhos)	Temperature (°F)	Purge Rate (L/min)
1	93.49	8.15	787	10.15	1
5	93.51	7.77	762	10.88	1
10	93.51	7.76	757	10.87	1
15	93.51	7.74	759	10.87	1

Purge Start Time: 15:15 Purge End Time: 15:30 Total Volume Purged: 4.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: M. Sundgell
Weather Conditions: 27°F, cloudy, 0-5 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SLB Rosemount	Tubing Diameter (ID):	2	inches
Project Number:	3502115	Depth to Water:	10.27	ft, TOC
Sampling Device:	Dedicated Bladder Pump	Depth to Bottom of Well:	34.36	ft, TOC
Date:	10/19/20	Feet of Water in Well:	24.09	ft
Well ID:	V-45	Volume of Water in Well:	3.9	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F)	Purge Rate (L/min)
1	10.27	8.71	809	8.92	1
5	10.29	8.50	796	8.82	1
10	10.29	8.56	798	8.78	1
15	10.29	8.65	798	8.84	1

Purge Start Time: 11:00 Purge End Time: 11:20 Total Volume Purged: 12.0 gal

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

Weather Conditions: 30°F, cloudy, 0-5 mph SE

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rockmount
Project Number: 350 2115
Sampling Device: Dedicated Bladder Pump
Date: 10/19/20
Well ID: U-4D

Tubing Diameter (ID): 2 inches
Depth to Water: 16.64 ft, TOC
Depth to Bottom of Well: 89.2 ft, TOC
Feet of Water in Well: 72.56 ft
Volume of Water in Well: 11.8 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u /mhos)	Temperature (°F)	Purge Rate (L/min)
1	16.64	8.86	859	8.68	1
30	16.65	8.96	860	8.66	1
60	16.65	8.96	860	8.66	1
85	16.65	8.97	860	8.68	1
		~~8.97~~	~~860~~		

Purge Start Time: 11:00 Purge End Time: 12:15 Total Volume Purged: 35.5 gal

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

Weather Conditions: 32°F, snow flurries; 05 mph SE

Comments: DUP-1 collected

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SKB Rosemount	Tubing Diameter (ID):	2	inches
Project Number:	350-2115	Depth to Water:	23.16	ft, TOC
Sampling Device:	Dedicated Bladder Pump	Depth to Bottom of Well:	42.5	ft, TOC
Date:	10/19/20	Feet of Water in Well:	19.34	ft
Well ID:	D-55	Volume of Water in Well:	3.15	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	23.16	8.56	733	9.73	1
5	23.18	8.67	830	10.34	1
10	23.18	8.70	834	10.37	1
15	23.16	8.81	838	10.43	1

Purge Start Time: 13:30 Purge End Time: 13:50 Total Volume Purged: 9.5 gal

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

Weather Conditions: 33°F, snow flurries, 0-5 mph SE

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SK-B Kosement
Project Number: 3502118
Sampling Device: Dedicated Bladder Pump
Date: 10/19/20
Well ID: U-5D

Tubing Diameter (ID): 2 inches
Depth to Water: 25.96 ft, TOC
Depth to Bottom of Well: 101-54 ft, TOC
Feet of Water in Well: 75-58 ft
Volume of Water in Well: 12.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ/mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	25.96	9.02	804	8.67	1
15	25.98	9.02	804	8-75	1
30	25.98	9-03	804	8.78	1
45	25-98	9.02	804	8.79	1

Purge Start Time: 13:30 Purge End Time: 14:15 Total Volume Purged: 370 gal

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

Weather Conditions: 33°F, snow flurries, 0-5 mph SE

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SLB Rosemount		Tubing Diameter (ID):	2	inches
Project Number:	350115		Depth to Water:	102.90	ft, TOC
Sampling Device:	Dedicated Bladder Pump		Depth to Bottom of Well:	121.81	ft, TOC
Date:	10/20/20		Feet of Water in Well:	18.91	ft
Well ID:	D-552		Volume of Water in Well:	3.1	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µmhos)	Temperature (°F)	Purge Rate (L/min)
1	102.90	8.55	1,050	9.26	1
5	102.92	8.84	1,010	9.41	1
10	102.92	8.87	1,010	9.44	1
15	102.92	8.75	1,010	9.50	1

Purge Start Time: 11:30 Purge End Time: 12:05 Total Volume Purged: 9.5 gal

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

Weather Conditions: 32°F, snow, 5-10 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemont
Project Number: 350 2115
Sampling Device: Dedicated Bladder Pump
Date: 10/20/20
Well ID: D-5D

Tubing Diameter (ID): 2 inches
Depth to Water: 111.14 ft, TOC
Depth to Bottom of Well: 157.1 ft, TOC
Feet of Water in Well: 45.96 ft
Volume of Water in Well: 7.5 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) c/	Purge Rate (L/min)
1	111.14	8.87	999	5.22	1
20	111.16	8.91	933	8.47	1
40	111.16	8.92	927	8.47	1
60	111.16	8.92	926	8.97	1

Purge Start Time: 11:30 Purge End Time: 12:30 Total Volume Purged: 23.0 gal

Approximate Purge Rate: 1 L/min. Purged/Sampled by: N-SCL/BOD

Weather Conditions: 32°F, snow, 7-10 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SK-B Rosemount		Tubing Diameter (ID):	2	inches
Project Number:	350 2118		Depth to Water:	104.28	ft, TOC
Sampling Device:	Dedicated Bladder Pump		Depth to Bottom of Well:	135.13	ft, TOC
Date:	10/20/20		Feet of Water in Well:	30.85	ft
Well ID:	D-35		Volume of Water in Well:	5.0	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u/ mhos)	Temperature (°F)	Purge Rate (L/min)
1	104.28	8.68	1,200	9.45	1
10	104.30	8.74	1,630	9.61	1
20	104.30	8.79	1,610	9.62	1
30	104.36	8.78	1,610	9.64	1

Purge Start Time: 10:15 Purge End Time: 10:50 Total Volume Purged: 15.0 gal

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

Weather Conditions: 32°F, snow flurries, 0-5 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Research
Project Number: 350 2115
Sampling Device: Dedicated bladder Pump
Date: 10/20/20
Well ID: D-3D

Tubing Diameter (ID): 1 inches
Depth to Water: 105.33 ft, TOC
Depth to Bottom of Well: 155.50 ft, TOC
Feet of Water in Well: 50.17 ft
Volume of Water in Well: 8.2 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	105.58	8.78	1,050	9.25	1
20	105.35	8.88	1,050	9.25	1
40	105.38	8.89	1,050	9.25	1
50		8.90	1,050	9.25	1

Purge Start Time: 10:15 Purge End Time: 11:10 Total Volume Purged: 25.0 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: M-Scalzo/
Weather Conditions: 32°F, cloudy, 0-5 mph E
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SKB Rosemount		Tubing Diameter (ID):	2	inches
Project Number:	350 2115		Depth to Water:	116.87	ft, TOC
Sampling Device:	Dedicated Bladder Pump		Depth to Bottom of Well:	135.97	ft, TOC
Date:	10/20/20		Feet of Water in Well:	19.10	ft
Well ID:	D-15		Volume of Water in Well:	3.1	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1	116.87	8.95	718	8.12	1
10	116.89	8.77	871	10.24	1
20	116.94	8.79	859	10.74	1
30	116.89	8.87	852	11.01	1

Purge Start Time: 7:45 Purge End Time: 8:20 Total Volume Purged: 9.5 gal

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

Weather Conditions: 32°F, cloudy, 0-5 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLCB Rosemont
Project Number: 350215
Sampling Device: Dedicated Bladder Pump
Date: 10/20/15
Well ID: D-10

Tubing Diameter (ID): 2 inches
Depth to Water: 113.77 ft, TOC
Depth to Bottom of Well: 164.5 ft, TOC
Feet of Water in Well: 50.73 ft
Volume of Water in Well: 8.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µs/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	113.77	8.91	824	9.97	1
20	113.79	8.90	808	10.77	1
40	113.79	9.07	801	10.74	1
50	113.79	8.99	806	10.80	1

Purge Start Time: 7:45 Purge End Time: 8:40 Total Volume Purged: 25.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N. Schlegel
Weather Conditions: 32 °F, cloudy, 8-5 mph E
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	Skis Unlimited	Tubing Diameter (ID):	2	inches
Project Number:	350211	Depth to Water:	112.07	ft, TOC
Sampling Device:	Dedicated Bladder Pump	Depth to Bottom of Well:	134.78	ft, TOC
Date:	10/20/20	Feet of Water in Well:	22.71	ft
Well ID:	D-25	Volume of Water in Well:	3.7	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µ/mhos)	Temperature (°F)	Purge Rate (L/min)
1	112.07	8.81	709	9.71	1
10	112.09	8.69	882	9.70	1
20	112.09	8.80	894	9.62	1
30	112.09	8.75	882	9.70	1

Purge Start Time: 9:00 Purge End Time: 9:35 Total Volume Purged: 11.5 gal

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

Weather Conditions: 32°F, cloudy, 0-5 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: CKB Rosemont
Project Number: 350 2115
Sampling Device: Dedicated Bladder Pump
Date: 10/20/20
Well ID: D-2D

Tubing Diameter (ID): 2 inches
Depth to Water: 110.90 ft, TOC
Depth to Bottom of Well: 163.98 ft, TOC
Feet of Water in Well: 53.48 ft
Volume of Water in Well: 8.7 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uS / mS)	Temperature (°F) O_2	Purge Rate (L/min)
1	110.51	8.92	0.49	9.46	1
20	110.52	8.89	0.57	9.38	1
40	110.52	8.71	0.55	9.57	1
50	110.52	8.92	0.52	9.62	1

Purge Start Time: 9:00 Purge End Time: 9:50 Total Volume Purged: 26.5 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: M. Schubert
Weather Conditions: 32°F, cloudy, 0-5 mph E
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site:	SKB Rockmount		Tubing Diameter (ID):	2	inches
Project Number:	3502115		Depth to Water:	99.33	ft, TOC
Sampling Device:	Dedicated Bladder Pump		Depth to Bottom of Well:	120.40	ft, TOC
Date:	10/20/20		Feet of Water in Well:	21.07	ft
Well ID:	D-45		Volume of Water in Well:	3.4	gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F) °C	Purge Rate (L/min)
1					1
10					1
20					1
30					1

Purge Start Time: 13:10 Purge End Time: 13:45 Total Volume Purged: 10.5 gal

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

Weather Conditions: 32°F, snow, 5-10 mph E

Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Restaurant
Project Number: 350 2915
Sampling Device: Dedicated Bladder Pump
Date: 10/20/20
Well ID: D-47

Tubing Diameter (ID): 0 inches
Depth to Water: 99.50 ft, TOC
Depth to Bottom of Well: 138.7 ft, TOC
Feet of Water in Well: 38.5 ft
Volume of Water in Well: 6.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (uS/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	99.50	8.93	916	10.27	1
20	99.52	8.93	917	10.26	1
40	99.32	8.92	918	10.25	1
50	99.52	8.91	910	10.25	1

Purge Start Time: 13:10 Purge End Time: 14:00 Total Volume Purged: 19.0 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: V. Schuyler
Weather Conditions: 32°F, snow 5-10 mph E
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SLB Reassessment
Project Number: 350213
Sampling Device: Disposable Bailer
Date: 10/21/20
Well ID: D-7

Tubing Diameter (ID): 2 inches
Depth to Water: 98.95 ft, TOC
Depth to Bottom of Well: 107.4 ft, TOC
Feet of Water in Well: 8.45 ft
Volume of Water in Well: 1.4 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (µS/cm)	Temperature (°F) °C	Purge Rate (L/min)
1	98.95	8.76	1,480	7.84	1
5	98.97	8.77	1,480	7.75	1
10	98.99	8.78	1,490	7.51	1
15	99.00	8.79	1,490	7.44	1

Purge Start Time: 8:00 Purge End Time: 8:20 Total Volume Purged: 4.5 gal
Approximate Purge Rate: 1 L/min Purged/Sampled by: N-Schlegel
Weather Conditions: 32°F, cloudy, 0-5 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Regiment
Project Number: 3502115
Sampling Device: Dedicated Bladder Pump
Date: 10/21/20
Well ID: P-8

Tubing Diameter (ID): 2 inches
Depth to Water: 103.61 ft, TOC
Depth to Bottom of Well: 130.1 ft, TOC
Feet of Water in Well: 26.49 ft
Volume of Water in Well: 4.3 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F)	Purge Rate (L/min)
1	103.61	9.10	871	6.59	1
15	107.26	9.12	987	8.30	1
30	111.47	9.02	969	9.45	1
45	114.26	9.12	965	9.50	1

Purge Start Time: 9:30 Purge End Time: 10:15 Total Volume Purged: 15.0 gal
Approximate Purge Rate: 1 L/min. Purged/Sampled by: N. Sundgren
Weather Conditions: 33°F, cloudy, 5-10 mph NW
Comments:

WELL PURGING RECORD
LOW-FLOW SAMPLING METHOD

Site: SKB Rosemont
Project Number: 3502115
Sampling Device: Dedicated Bladder Pump
Date: 10/27/20
Well ID: D-9

Tubing Diameter (ID): 2 inches
Depth to Water: 93.28 ft, TOC
Depth to Bottom of Well: 118.5 ft, TOC
Feet of Water in Well: 25.22 ft
Volume of Water in Well: 4.1 gal

Elapsed Time (min)	Depth to Water (ft, TOC)	pH (s.u.)	Specific Conductance (u / mhos)	Temperature (°F)	Purge Rate (L/min)
1	93.28	9.06	734	10.60	1
20	93.30	9.09	824	10.40	1
40	93.30	8.93	907	10.09	1
50	93.30	8.99	926	10.29	1

Purge Start Time: 10:35 Purge End Time: 11:25 Total Volume Purged: 12.5 gal

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

Weather Conditions: 33°F, cloudy, 5-10 mph NW

Comments:

Appendix B – Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 480-166205-1
Client Project/Site: SKB Rosemount - CCR Groundwater III/IV
Sampling Event: CCR Groundwater

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

Attn: Nathaniel Beinemann

Authorized for release by:
3/10/2020 1:31:36 PM
Wyatt Watson, Project Management Assistant I
wyatt.watson@testamericainc.com

Designee for

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

Table of Contents

Definitions/Glossary

Client: Waste Connections, Inc. Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Job ID: 480-166205-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-166205-1

Receipt
The samples were received on 2/11/2020 2:54 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 1.6º C, 1.9º C, 2.2º C, 2.3º C, 2.4º C, 3.0º C and 3.4º C.

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

General Chemistry
Methods SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: D-1D (480-166205-1), D-1S (480-166205-2), D-2D (480-166205-3), D-2S (480-166205-4), D-3D (480-166205-5), D-3S (480-166205-6), D-4D (480-166205-7), D-4S (480-166205-8), D-5D (480-166205-9), D-5S2 (480-166205-10), D-8 (480-166205-11), D-9 (480-166205-12) and U-4D (480-166205-13).

Methods SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: U-4S (480-166205-14), U-5D (480-166205-15), U-5S (480-166205-16), DUP-1 (480-166205-17), DUP-2 (480-166205-18), FIELD BLANK (480-166205-19) and EQUIPMENT BLANK (480-166205-20).

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

Narrative

Job Narrative
480-166205-2

Receipt
The samples were received on 2/11/2020 2:54 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 1.6º C, 1.9º C, 2.2º C, 2.3º C, 2.4º C, 3.0º C and 3.4º C.

RAD
Method 903.0: Radium-226 Prep Batch 160-460330
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
D-1D (480-166205-1), D-1S (480-166205-2), D-2D (480-166205-3), D-2S (480-166205-4), D-3D (480-166205-5), D-3S (480-166205-6), D-4D (480-166205-7), D-4S (480-166205-8), D-5D (480-166205-9), D-5S2 (480-166205-10), D-8 (480-166205-11), D-9 (480-166205-12), U-4D (480-166205-13), U-4S (480-166205-14), U-5D (480-166205-15), U-5S (480-166205-16), DUP-1 (480-166205-17), DUP-2 (480-166205-18), FIELD BLANK (480-166205-19), EQUIPMENT BLANK (480-166205-20), (LCS 160-460330/1-A), (LCSD 160-460330/2-A) and (MB 160-460330/23-A)

Method 904.0: Radium-228 Prep Batch 160-460333
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
D-1D (480-166205-1), D-1S (480-166205-2), D-2D (480-166205-3), D-2S (480-166205-4), D-3D (480-166205-5), D-3S (480-166205-6), D-4D (480-166205-7), D-4S (480-166205-8), D-5D (480-166205-9), D-5S2 (480-166205-10), D-8 (480-166205-11), D-9 (480-166205-12), U-4D (480-166205-13), U-4S (480-166205-14), U-5D (480-166205-15), U-5S (480-166205-16), DUP-1 (480-166205-17), DUP-2 (480-166205-18), FIELD BLANK (480-166205-19), EQUIPMENT BLANK (480-166205-20), (LCS 160-460333/1-A), (LCSD 160-460333/2-A) and (MB 160-460333/23-A)

Job ID: 480-166205-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method PrecSep_0: Radium 228 Prep Batch 160-460333:

Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1D (480-166205-1), D-1S (480-166205-2), D-2D (480-166205-3), D-2S (480-166205-4), D-3D (480-166205-5), D-3S (480-166205-6), D-4D (480-166205-7), D-4S (480-166205-8), D-5D (480-166205-9), D-5S2 (480-166205-10), D-8 (480-166205-11), D-9 (480-166205-12), U-4D (480-166205-13), U-4S (480-166205-14), U-5D (480-166205-15), U-5S (480-166205-16), DUP-1 (480-166205-17), DUP-2 (480-166205-18), FIELD BLANK (480-166205-19) and EQUIPMENT BLANK (480-166205-20). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep_0: Radium 228 Prep Batch 160-460333:

The following sample was prepared at a reduced aliquot due to discoloration: D-8 (480-166205-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Sample 480-166205-11 has a slight cloudy appearance and dark yellow/brown discoloration.

Method PrecSep-21: Radium 226 Prep Batch 160-460330:

Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1D (480-166205-1), D-1S (480-166205-2), D-2D (480-166205-3), D-2S (480-166205-4), D-3D (480-166205-5), D-3S (480-166205-6), D-4D (480-166205-7), D-4S (480-166205-8), D-5D (480-166205-9), D-5S2 (480-166205-10), D-8 (480-166205-11), D-9 (480-166205-12), U-4D (480-166205-13), U-4S (480-166205-14), U-5D (480-166205-15), U-5S (480-166205-16), DUP-1 (480-166205-17), DUP-2 (480-166205-18), FIELD BLANK (480-166205-19) and EQUIPMENT BLANK (480-166205-20). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-460330:

The following sample was prepared at a reduced aliquot due to discoloration: D-8 (480-166205-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision. Sample 480-166205-11 has a slight cloudy appearance and dark yellow/brown discoloration.

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

Detection Summary

Client: Waste Connections, Inc.
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Job ID: 480-166205-1

Client Sample ID: D-1D — Lab Sample ID: 480-166205-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.047		0.0020		mg/L	1		6010D	Total/NA
Calcium	81.9		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0045		0.0040		mg/L	1		6010D	Total/NA
Sulfate	36.1	F1	4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	358		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	30.6		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080	F1	0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-1S — Lab Sample ID: 480-166205-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.055		0.0020		mg/L	1		6010D	Total/NA
Boron	0.035		0.020		mg/L	1		6010D	Total/NA
Calcium	104		0.50		mg/L	1		6010D	Total/NA
Sulfate	28.8		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	405		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	35.4		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-2D — Lab Sample ID: 480-166205-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.053		0.0020		mg/L	1		6010D	Total/NA
Calcium	89.9		0.50		mg/L	1		6010D	Total/NA
Sulfate	32.3		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	366		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	35.2		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-2S — Lab Sample ID: 480-166205-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.051		0.0020		mg/L	1		6010D	Total/NA
Boron	0.027		0.020		mg/L	1		6010D	Total/NA
Calcium	104		0.50		mg/L	1		6010D	Total/NA
Sulfate	30.5		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	430		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	42.3		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-3D — Lab Sample ID: 480-166205-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.061		0.0020		mg/L	1		6010D	Total/NA
Boron	0.054		0.020		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: D-3D (Continued) — Lab Sample ID: 480-166205-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	106		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0066		0.0040		mg/L	1		6010D	Total/NA
Cobalt	0.33		0.30		ug/L	1		6020B	Total/NA
Sulfate	42.7		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	433		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	75.2		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.070		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-3S — Lab Sample ID: 480-166205-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.064		0.0020		mg/L	1		6010D	Total/NA
Boron	0.45		0.020		mg/L	1		6010D	Total/NA
Calcium	118		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0074		0.0040		mg/L	1		6010D	Total/NA
Sulfate	55.3		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	526		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	119		1.5		mg/L	3		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-4D — Lab Sample ID: 480-166205-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.075		0.0020		mg/L	1		6010D	Total/NA
Calcium	100		0.50		mg/L	1		6010D	Total/NA
Sulfate	34.4		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	414		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	47.1		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-4S — Lab Sample ID: 480-166205-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.066		0.0020		mg/L	1		6010D	Total/NA
Calcium	97.4		0.50		mg/L	1		6010D	Total/NA
Sulfate	33.6		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	418		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	49.3		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-5D — Lab Sample ID: 480-166205-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.055		0.0020		mg/L	1		6010D	Total/NA
Calcium	99.7		0.50		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: D-5D (Continued)
Lab Sample ID: 480-166205-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	40.1		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	330		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	35.6		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-5S2
Lab Sample ID: 480-166205-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.097		0.0020		mg/L	1		6010D	Total/NA
Boron	0.17		0.020		mg/L	1		6010D	Total/NA
Calcium	149		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0051		0.0040		mg/L	1		6010D	Total/NA
Sulfate	67.0		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	711		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	192		2.5		mg/L	5		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.6	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-8
Lab Sample ID: 480-166205-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.13		0.0020		mg/L	1		6010D	Total/NA
Calcium	127		0.50		mg/L	1		6010D	Total/NA
Chromium	0.021		0.0040		mg/L	1		6010D	Total/NA
Cobalt	1.9		0.30		ug/L	1		6020B	Total/NA
Sulfate	47.2		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	405		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	42.3		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.11		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-9
Lab Sample ID: 480-166205-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.059		0.0020		mg/L	1		6010D	Total/NA
Boron	0.022		0.020		mg/L	1		6010D	Total/NA
Calcium	89.8		0.50		mg/L	1		6010D	Total/NA
Sulfate	34.5		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	354		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	33.3		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-4D
Lab Sample ID: 480-166205-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.041		0.0020		mg/L	1		6010D	Total/NA
Calcium	84.2		0.50		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: U-4D (Continued) — Lab Sample ID: 480-166205-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	36.3		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	385		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	37.2		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-4S — Lab Sample ID: 480-166205-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.037		0.0020		mg/L	1		6010D	Total/NA
Calcium	75.4		0.50		mg/L	1		6010D	Total/NA
Chromium	0.014		0.0040		mg/L	1		6010D	Total/NA
Total Dissolved Solids	349		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	46.1		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-5D — Lab Sample ID: 480-166205-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.058		0.0020		mg/L	1		6010D	Total/NA
Calcium	84.1		0.50		mg/L	1		6010D	Total/NA
Sulfate	39.4		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	387		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	29.6		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-5S — Lab Sample ID: 480-166205-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.054		0.0020		mg/L	1		6010D	Total/NA
Calcium	73.7		0.50		mg/L	1		6010D	Total/NA
Sulfate	21.2		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	348		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	52.4		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.11	F1	0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 480-166205-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.057		0.0020		mg/L	1		6010D	Total/NA
Calcium	85.9		0.50		mg/L	1		6010D	Total/NA
Sulfate	39.1		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	361		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	30.0		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUP-1 (Continued)
Lab Sample ID: 480-166205-17

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Temperature	17.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUP-2
Lab Sample ID: 480-166205-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.064		0.0020		mg/L	1		6010D	Total/NA
Boron	0.46		0.020		mg/L	1		6010D	Total/NA
Calcium	120		0.50		mg/L	1		6010D	Total/NA
Chromium	0.010		0.0040		mg/L	1		6010D	Total/NA
Sulfate	54.7		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	516		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	118		1.5		mg/L	3		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-166205-19

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.9	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: EQUIPMENT BLANK
Lab Sample ID: 480-166205-20

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.5	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: D-1D
Date Collected: 02/07/20 12:20
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-1
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.047**		0.0020		mg/L		02/12/20 08:10	02/12/20 19:37	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 19:37	1
Calcium	**81.9**		0.50		mg/L		02/12/20 08:10	02/12/20 19:37	1
Chromium	**0.0045**		0.0040		mg/L		02/12/20 08:10	02/12/20 19:37	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**36.1**	**F1**	4.0		mg/L			02/11/20 19:22	2
Total Dissolved Solids	**358**		10.0		mg/L			02/13/20 17:11	1
Chloride	**30.6**		0.50		mg/L			02/11/20 18:51	1
Fluoride	**0.080**	**F1**	0.050		mg/L			02/12/20 10:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			02/13/20 16:12	1
Temperature	**19.5**	**HF**	0.001		Degrees C			02/13/20 16:12	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0479	U	0.0862	0.0864	1.00	0.151	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0490	U	0.236	0.236	1.00	0.432	pCi/L	02/14/20 08:56	03/03/20 17:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:43*	*1*
Y Carrier	*87.1*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:43*	*1*

Client Sample ID: D-1S
Date Collected: 02/07/20 12:05
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-2
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.055**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:06	1
Boron	**0.035**		0.020		mg/L		02/12/20 08:10	02/12/20 20:06	1
Calcium	**104**		0.50		mg/L		02/12/20 08:10	02/12/20 20:06	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:06	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 15:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**28.8**		2.0		mg/L			02/11/20 19:24	1
Total Dissolved Solids	**405**		10.0		mg/L			02/13/20 17:11	1
Chloride	**35.4**		0.50		mg/L			02/11/20 18:51	1
Fluoride	**0.050**		0.050		mg/L			02/12/20 11:02	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.5**	**HF**	0.1		SU			02/13/20 16:15	1
Temperature	**19.5**	**HF**	0.001		Degrees C			02/13/20 16:15	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0189	U	0.0694	0.0694	1.00	0.132	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0418	U	0.257	0.257	1.00	0.452	pCi/L	02/14/20 08:56	03/03/20 17:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:43*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:43*	*1*

Client Sample ID: D-2D
Lab Sample ID: 480-166205-3

Date Collected: 02/07/20 13:15
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.053**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:10	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:10	1
Calcium	**89.9**		0.50		mg/L		02/12/20 08:10	02/12/20 20:10	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:10	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**32.3**		2.0		mg/L			02/11/20 19:25	1
Total Dissolved Solids	**366**		10.0		mg/L			02/13/20 17:11	1
Chloride	**35.2**		0.50		mg/L			02/11/20 18:51	1
Fluoride	**0.090**		0.050		mg/L			02/12/20 11:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			02/13/20 16:21	1
Temperature	**19.5**	**HF**	0.001		Degrees C			02/13/20 16:21	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.115**		0.0810	0.0816	1.00	0.112	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0356	U	0.238	0.238	1.00	0.419	pCi/L	02/14/20 08:56	03/03/20 17:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*
Y Carrier	*88.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*

Client Sample ID: D-2S
Date Collected: 02/07/20 13:00
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-4
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.051**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:13	1
Boron	**0.027**		0.020		mg/L		02/12/20 08:10	02/12/20 20:13	1
Calcium	**104**		0.50		mg/L		02/12/20 08:10	02/12/20 20:13	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:13	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**30.5**		2.0		mg/L			02/11/20 19:25	1
Total Dissolved Solids	**430**		10.0		mg/L			02/13/20 17:11	1
Chloride	**42.3**		0.50		mg/L			02/11/20 18:51	1
Fluoride	**0.050**		0.050		mg/L			02/12/20 11:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.6**	**HF**	0.1		SU			02/13/20 16:24	1
Temperature	**19.8**	**HF**	0.001		Degrees C			02/13/20 16:24	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0306	U	0.0808	0.0808	1.00	0.147	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.435	U	0.285	0.288	1.00	0.442	pCi/L	02/14/20 08:56	03/03/20 17:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*
Y Carrier	*88.6*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*

Client Sample ID: D-3D
Lab Sample ID: 480-166205-5

Date Collected: 02/07/20 11:40
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.061		0.0020		mg/L		02/12/20 08:10	02/12/20 20:17	1
Boron	0.054		0.020		mg/L		02/12/20 08:10	02/12/20 20:17	1
Calcium	106		0.50		mg/L		02/12/20 08:10	02/12/20 20:17	1
Chromium	0.0066		0.0040		mg/L		02/12/20 08:10	02/12/20 20:17	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.33		0.30		ug/L		02/12/20 08:00	02/12/20 16:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	42.7		4.0		mg/L			02/11/20 19:26	2
Total Dissolved Solids	433		10.0		mg/L			02/13/20 17:11	1
Chloride	75.2		1.0		mg/L			02/11/20 19:38	2
Fluoride	0.070		0.050		mg/L			02/12/20 11:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.1		SU			02/13/20 16:27	1
Temperature	19.8	HF	0.001		Degrees C			02/13/20 16:27	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0252	U	0.0675	0.0676	1.00	0.126	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.9*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0741	U	0.241	0.241	1.00	0.418	pCi/L	02/14/20 08:56	03/03/20 17:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.9*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*

Client Sample ID: D-3S
Date Collected: 02/07/20 11:25
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-6
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.064		0.0020		mg/L		02/12/20 08:10	02/12/20 20:21	1
Boron	0.45		0.020		mg/L		02/12/20 08:10	02/12/20 20:21	1
Calcium	118		0.50		mg/L		02/12/20 08:10	02/12/20 20:21	1
Chromium	0.0074		0.0040		mg/L		02/12/20 08:10	02/12/20 20:21	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	55.3		4.0		mg/L			02/11/20 20:49	2
Total Dissolved Solids	526		10.0		mg/L			02/13/20 17:11	1
Chloride	119		1.5		mg/L			02/11/20 19:15	3
Fluoride	0.050		0.050		mg/L			02/12/20 11:23	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.7	HF	0.1		SU			02/13/20 16:29	1
Temperature	19.6	HF	0.001		Degrees C			02/13/20 16:29	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0292	U	0.0781	0.0781	1.00	0.144	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.236	U	0.292	0.293	1.00	0.484	pCi/L	02/14/20 08:56	03/03/20 17:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:44*	*1*

Client Sample ID: D-4D
Date Collected: 02/07/20 14:05
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-7
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.075**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:24	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:24	1
Calcium	**100**		0.50		mg/L		02/12/20 08:10	02/12/20 20:24	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:24	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**34.4**		2.0		mg/L			02/11/20 19:30	1
Total Dissolved Solids	**414**		10.0		mg/L			02/13/20 17:11	1
Chloride	**47.1**		0.50		mg/L			02/11/20 18:57	1
Fluoride	**0.080**		0.050		mg/L			02/12/20 11:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			02/13/20 16:32	1
Temperature	**19.5**	**HF**	0.001		Degrees C			02/13/20 16:32	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0982	U	0.0964	0.0968	1.00	0.152	pCi/L	02/14/20 08:07	03/09/20 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*02/14/20 08:07*	*03/09/20 09:53*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.126	U	0.215	0.216	1.00	0.365	pCi/L	02/14/20 08:56	03/03/20 17:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.5*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:47*	*1*
Y Carrier	*95.3*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:47*	*1*

Client Sample ID: D-4S
Date Collected: 02/07/20 13:50
Date Received: 02/11/20 14:54

Lab Sample ID: 480-166205-8
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.066**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:28	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:28	1
Calcium	**97.4**		0.50		mg/L		02/12/20 08:10	02/12/20 20:28	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:28	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**33.6**		2.0		mg/L			02/11/20 19:31	1
Total Dissolved Solids	**418**		10.0		mg/L			02/13/20 17:11	1
Chloride	**49.3**		1.0		mg/L			02/11/20 19:15	2
Fluoride	**0.090**		0.050		mg/L			02/12/20 11:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**HF**	0.1		SU			02/13/20 16:35	1
Temperature	**19.5**	**HF**	0.001		Degrees C			02/13/20 16:35	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0305	U	0.0565	0.0565	1.00	0.102	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.424**		0.259	0.262	1.00	0.394	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*87.9*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: D-5D
Lab Sample ID: 480-166205-9

Date Collected: 02/07/20 11:00
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.055**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:32	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:32	1
Calcium	**99.7**		0.50		mg/L		02/12/20 08:10	02/12/20 20:32	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:32	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**40.1**		4.0		mg/L			02/11/20 20:50	2
Total Dissolved Solids	**330**		10.0		mg/L			02/13/20 17:11	1
Chloride	**35.6**		0.50		mg/L			02/11/20 19:36	1
Fluoride	**0.080**		0.050		mg/L			02/12/20 11:31	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**HF**	0.1		SU			02/13/20 16:38	1
Temperature	**19.4**	**HF**	0.001		Degrees C			02/13/20 16:38	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0330	U	0.0710	0.0711	1.00	0.128	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0459	U	0.211	0.211	1.00	0.371	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*90.1*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: D-5S2
Lab Sample ID: 480-166205-10

Date Collected: 02/07/20 10:45
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.097		0.0020		mg/L		02/12/20 08:10	02/12/20 20:35	1
Boron	0.17		0.020		mg/L		02/12/20 08:10	02/12/20 20:35	1
Calcium	149		0.50		mg/L		02/12/20 08:10	02/12/20 20:35	1
Chromium	0.0051		0.0040		mg/L		02/12/20 08:10	02/12/20 20:35	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	67.0		4.0		mg/L			02/11/20 21:26	2
Total Dissolved Solids	711		10.0		mg/L			02/13/20 17:11	1
Chloride	192		2.5		mg/L			02/11/20 19:40	5
Fluoride	0.050		0.050		mg/L			02/12/20 11:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1		SU			02/13/20 16:44	1
Temperature	19.9	HF	0.001		Degrees C			02/13/20 16:44	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0661	U	0.0771	0.0773	1.00	0.126	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0904	U	0.289	0.289	1.00	0.496	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*90.8*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: D-8 — Lab Sample ID: 480-166205-11

Date Collected: 02/07/20 15:05 — **Matrix: Water**
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.13**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:50	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:50	1
Calcium	**127**		0.50		mg/L		02/12/20 08:10	02/12/20 20:50	1
Chromium	**0.021**		0.0040		mg/L		02/12/20 08:10	02/12/20 20:50	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	**1.9**		0.30		ug/L		02/12/20 08:00	02/12/20 16:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**47.2**		4.0		mg/L			02/11/20 20:51	2
Total Dissolved Solids	**405**		10.0		mg/L			02/13/20 17:11	1
Chloride	**42.3**		0.50		mg/L			02/11/20 19:36	1
Fluoride	**0.11**		0.050		mg/L			02/12/20 11:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.9**	**HF**	0.1		SU			02/13/20 16:47	1
Temperature	**19.9**	**HF**	0.001		Degrees C			02/13/20 16:47	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.117	U	0.120	0.120	1.00	0.190	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.766**		0.393	0.399	1.00	0.587	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*87.1*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: D-9
Lab Sample ID: 480-166205-12

Date Collected: 02/07/20 15:30
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.059**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:54	1
Boron	**0.022**		0.020		mg/L		02/12/20 08:10	02/12/20 20:54	1
Calcium	**89.8**		0.50		mg/L		02/12/20 08:10	02/12/20 20:54	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:54	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**34.5**		2.0		mg/L			02/11/20 20:51	1
Total Dissolved Solids	**354**		10.0		mg/L			02/13/20 17:11	1
Chloride	**33.3**		0.50		mg/L			02/11/20 19:36	1
Fluoride	**0.090**		0.050		mg/L			02/12/20 11:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**HF**	0.1		SU			02/13/20 16:49	1
Temperature	**19.8**	**HF**	0.001		Degrees C			02/13/20 16:49	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0399	U	0.0506	0.0507	1.00	0.127	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.122	U	0.244	0.245	1.00	0.453	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*89.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: U-4D
Lab Sample ID: 480-166205-13

Date Collected: 02/06/20 13:45
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.041**		0.0020		mg/L		02/12/20 08:10	02/12/20 20:58	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 20:58	1
Calcium	**84.2**		0.50		mg/L		02/12/20 08:10	02/12/20 20:58	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 20:58	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**36.3**		2.0		mg/L			02/11/20 20:51	1
Total Dissolved Solids	**385**		10.0		mg/L			02/13/20 17:53	1
Chloride	**37.2**		0.50		mg/L			02/11/20 18:59	1
Fluoride	**0.10**		0.050		mg/L			02/12/20 11:42	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			02/13/20 16:55	1
Temperature	**19.6**	**HF**	0.001		Degrees C			02/13/20 16:55	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00653	U	0.0482	0.0482	1.00	0.100	pCi/L	02/14/20 08:07	03/09/20 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.5*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:46*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.126	U	0.236	0.236	1.00	0.402	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.5*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*88.6*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: U-4S
Lab Sample ID: 480-166205-14

Date Collected: 02/06/20 13:30
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.037**		0.0020		mg/L		02/12/20 08:10	02/12/20 21:01	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:01	1
Calcium	**75.4**		0.50		mg/L		02/12/20 08:10	02/12/20 21:01	1
Chromium	**0.014**		0.0040		mg/L		02/12/20 08:10	02/12/20 21:01	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 20:51	1
Total Dissolved Solids	**349**		10.0		mg/L			02/13/20 17:11	1
Chloride	**46.1**		1.0		mg/L			02/11/20 19:17	2
Fluoride	**0.080**		0.050		mg/L			02/12/20 11:45	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			02/14/20 14:34	1
Temperature	**18.5**	**HF**	0.001		Degrees C			02/14/20 14:34	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0986	U	0.0818	0.0823	1.00	0.120	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.200	U	0.243	0.244	1.00	0.402	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*95.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: U-5D
Lab Sample ID: 480-166205-15

Date Collected: 02/06/20 16:05
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.058**		0.0020		mg/L		02/12/20 08:10	02/12/20 21:05	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:05	1
Calcium	**84.1**		0.50		mg/L		02/12/20 08:10	02/12/20 21:05	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 21:05	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.4**		2.0		mg/L			02/11/20 19:35	1
Total Dissolved Solids	**387**		10.0		mg/L			02/13/20 17:11	1
Chloride	**29.6**		0.50		mg/L			02/11/20 18:59	1
Fluoride	**0.10**		0.050		mg/L			02/12/20 11:48	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			02/14/20 14:37	1
Temperature	**17.9**	**HF**	0.001		Degrees C			02/14/20 14:37	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0632	U	0.0724	0.0727	1.00	0.117	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.443**		0.277	0.280	1.00	0.424	pCi/L	02/14/20 08:56	03/03/20 17:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*
Y Carrier	*88.6*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:48*	*1*

Client Sample ID: U-5S
Lab Sample ID: 480-166205-16

Date Collected: 02/06/20 15:50
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.054**		0.0020		mg/L		02/12/20 08:10	02/12/20 21:09	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:09	1
Calcium	**73.7**		0.50		mg/L		02/12/20 08:10	02/12/20 21:09	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 21:09	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**21.2**		2.0		mg/L			02/11/20 20:51	1
Total Dissolved Solids	**348**		10.0		mg/L			02/13/20 17:53	1
Chloride	**52.4**		1.0		mg/L			02/11/20 19:17	2
Fluoride	**0.11**	**F1**	0.050		mg/L			02/12/20 12:07	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**	**HF**	0.1		SU			02/14/20 14:39	1
Temperature	**17.6**	**HF**	0.001		Degrees C			02/14/20 14:39	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00825	U	0.0572	0.0572	1.00	0.115	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.247	U	0.169	0.170	1.00	0.358	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*
Y Carrier	*92.7*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*

Client Sample ID: DUP-1
Lab Sample ID: 480-166205-17

Date Collected: 02/06/20 00:00
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.057**		0.0020		mg/L		02/12/20 08:10	02/12/20 21:13	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:13	1
Calcium	**85.9**		0.50		mg/L		02/12/20 08:10	02/12/20 21:13	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 21:13	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.1**		2.0		mg/L			02/11/20 19:35	1
Total Dissolved Solids	**361**		10.0		mg/L			02/13/20 17:53	1
Chloride	**30.0**		0.50		mg/L			02/11/20 20:55	1
Fluoride	**0.10**		0.050		mg/L			02/12/20 12:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			02/14/20 14:42	1
Temperature	**17.8**	**HF**	0.001		Degrees C			02/14/20 14:42	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0826	U	0.0953	0.0956	1.00	0.156	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.116	U	0.228	0.228	1.00	0.389	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*
Y Carrier	*89.3*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*

Client Sample ID: DUP-2
Lab Sample ID: 480-166205-18

Date Collected: 02/07/20 00:00
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.064		0.0020		mg/L		02/12/20 08:10	02/12/20 21:16	1
Boron	0.46		0.020		mg/L		02/12/20 08:10	02/12/20 21:16	1
Calcium	120		0.50		mg/L		02/12/20 08:10	02/12/20 21:16	1
Chromium	0.010		0.0040		mg/L		02/12/20 08:10	02/12/20 21:16	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	54.7		4.0		mg/L			02/11/20 19:37	2
Total Dissolved Solids	516		10.0		mg/L			02/13/20 17:53	1
Chloride	118		1.5		mg/L			02/11/20 19:23	3
Fluoride	0.050		0.050		mg/L			02/12/20 12:17	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1		SU			02/14/20 14:47	1
Temperature	19.3	HF	0.001		Degrees C			02/14/20 14:47	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0673	U	0.0718	0.0720	1.00	0.114	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0816	U	0.234	0.234	1.00	0.406	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*
Y Carrier	*88.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-166205-19

Date Collected: 02/07/20 16:00
Matrix: Water
Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/12/20 08:10	02/12/20 21:20	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:20	1
Calcium	ND		0.50		mg/L		02/12/20 08:10	02/12/20 21:20	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 21:20	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 19:37	1
Total Dissolved Solids	ND		10.0		mg/L			02/13/20 17:53	1
Chloride	ND		0.50		mg/L			02/11/20 18:57	1
Fluoride	ND		0.050		mg/L			02/12/20 12:24	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**	**HF**	0.1		SU			02/14/20 14:52	1
Temperature	**18.0**	**HF**	0.001		Degrees C			02/14/20 14:52	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0136	U	0.0696	0.0696	1.00	0.145	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.8*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.340	U	0.231	0.233	1.00	0.356	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.8*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*
Y Carrier	*88.6*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*

Client: Waste Connections, Inc.
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Job ID: 480-166205-1

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 480-166205-20

Date Collected: 02/07/20 15:45

Matrix: Water

Date Received: 02/11/20 14:54

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/12/20 08:10	02/12/20 21:35	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 21:35	1
Calcium	ND		0.50		mg/L		02/12/20 08:10	02/12/20 21:35	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 21:35	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 16:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 19:38	1
Total Dissolved Solids	ND		10.0		mg/L			02/13/20 17:53	1
Chloride	ND		0.50		mg/L			02/11/20 18:57	1
Fluoride	ND		0.050		mg/L			02/12/20 12:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.5**	**HF**	0.1		SU			02/14/20 14:54	1
Temperature	**17.7**	**HF**	0.001		Degrees C			02/14/20 14:54	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00742	U	0.0676	0.0676	1.00	0.142	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.2*		*40 - 110*	*02/14/20 08:07*	*03/09/20 11:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0141	U	0.216	0.216	1.00	0.388	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.2*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*
Y Carrier	*92.0*		*40 - 110*	*02/14/20 08:56*	*03/03/20 17:49*	*1*

Tracer/Carrier Summary

Client: Waste Connections, Inc.
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Job ID: 480-166205-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
480-166205-1	D-1D	93.8
480-166205-2	D-1S	95.1
480-166205-3	D-2D	97.5
480-166205-4	D-2S	93.8
480-166205-5	D-3D	96.9
480-166205-6	D-3S	91.4
480-166205-7	D-4D	90.5
480-166205-8	D-4S	92.0
480-166205-9	D-5D	99.1
480-166205-10	D-5S2	94.2
480-166205-11	D-8	94.2
480-166205-12	D-9	94.2
480-166205-13	U-4D	94.5
480-166205-14	U-4S	88.3
480-166205-15	U-5D	88.3
480-166205-16	U-5S	93.5
480-166205-17	DUP-1	93.2
480-166205-18	DUP-2	92.6
480-166205-19	FIELD BLANK	97.8
480-166205-20	EQUIPMENT BLANK	86.2
LCS 160-460330/1-A	Lab Control Sample	102
LCSD 160-460330/2-A	Lab Control Sample Dup	93.2
MB 160-460330/23-A	Method Blank	99.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
480-166205-1	D-1D	93.8	87.1
480-166205-2	D-1S	95.1	86.0
480-166205-3	D-2D	97.5	88.2
480-166205-4	D-2S	93.8	88.6
480-166205-5	D-3D	96.9	86.0
480-166205-6	D-3S	91.4	86.0
480-166205-7	D-4D	90.5	95.3
480-166205-8	D-4S	92.0	87.9
480-166205-9	D-5D	99.1	90.1
480-166205-10	D-5S2	94.2	90.8
480-166205-11	D-8	94.2	87.1
480-166205-12	D-9	94.2	89.0
480-166205-13	U-4D	94.5	88.6
480-166205-14	U-4S	88.3	95.0
480-166205-15	U-5D	88.3	88.6
480-166205-16	U-5S	93.5	92.7
480-166205-17	DUP-1	93.2	89.3

Tracer/Carrier Summary

Client: Waste Connections, Inc. Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Method: 904.0 - Radium-228 (GFPC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)									
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)								
480-166205-18	DUP-2	92.6	88.2								
480-166205-19	FIELD BLANK	97.8	88.6								
480-166205-20	EQUIPMENT BLANK	86.2	92.0								
LCS 160-460333/1-A	Lab Control Sample	102	89.0								
LCSD 160-460333/2-A	Lab Control Sample Dup	93.2	87.1								
MB 160-460333/23-A	Method Blank	99.4	94.6								

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 480-517172/1-A
Matrix: Water
Analysis Batch: 517403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517172

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/12/20 08:10	02/12/20 19:29	1
Boron	ND		0.020		mg/L		02/12/20 08:10	02/12/20 19:29	1
Calcium	ND		0.50		mg/L		02/12/20 08:10	02/12/20 19:29	1
Chromium	ND		0.0040		mg/L		02/12/20 08:10	02/12/20 19:29	1

Lab Sample ID: LCS 480-517172/2-A
Matrix: Water
Analysis Batch: 517403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517172

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.212		mg/L		106	80 - 120
Boron	0.200	0.206		mg/L		103	80 - 120
Calcium	10.0	9.86		mg/L		99	80 - 120
Chromium	0.200	0.206		mg/L		103	80 - 120

Lab Sample ID: 480-166205-1 MS
Matrix: Water
Analysis Batch: 517403

Client Sample ID: D-1D
Prep Type: Total/NA
Prep Batch: 517172

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.047		0.200	0.256		mg/L		104	75 - 125
Boron	ND		0.200	0.224		mg/L		103	75 - 125
Calcium	81.9		10.0	96.24	4	mg/L		143	75 - 125
Chromium	0.0045		0.200	0.210		mg/L		103	75 - 125

Lab Sample ID: 480-166205-1 MSD
Matrix: Water
Analysis Batch: 517403

Client Sample ID: D-1D
Prep Type: Total/NA
Prep Batch: 517172

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	0.047		0.200	0.252		mg/L		102	75 - 125	2	20
Boron	ND		0.200	0.222		mg/L		102	75 - 125	1	20
Calcium	81.9		10.0	92.91	4	mg/L		110	75 - 125	4	20
Chromium	0.0045		0.200	0.205		mg/L		100	75 - 125	2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 480-517173/1-A
Matrix: Water
Analysis Batch: 517376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.30		ug/L		02/12/20 08:00	02/12/20 15:41	1

Lab Sample ID: LCS 480-517173/2-A
Matrix: Water
Analysis Batch: 517376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517173

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	20.0	17.58		ug/L		88	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 480-166205-2 MS
Matrix: Water
Analysis Batch: 517376

Client Sample ID: D-1S
Prep Type: Total/NA
Prep Batch: 517173

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	ND		20.0	17.74		ug/L		89	75 - 125

Lab Sample ID: 480-166205-2 MSD
Matrix: Water
Analysis Batch: 517376

Client Sample ID: D-1S
Prep Type: Total/NA
Prep Batch: 517173

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	ND		20.0	17.13		ug/L		86	75 - 125	3	20

Method: D516-90, 02 - Sulfate

Lab Sample ID: MB 480-517162/43
Matrix: Water
Analysis Batch: 517162

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 19:34	1

Lab Sample ID: MB 480-517162/63
Matrix: Water
Analysis Batch: 517162

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 19:47	1

Lab Sample ID: MB 480-517162/88
Matrix: Water
Analysis Batch: 517162

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/11/20 21:25	1

Lab Sample ID: LCS 480-517162/44
Matrix: Water
Analysis Batch: 517162

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	28.67		mg/L		96	90 - 110

Lab Sample ID: LCS 480-517162/64
Matrix: Water
Analysis Batch: 517162

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	28.73		mg/L		96	90 - 110

Method: D516-90, 02 - Sulfate (Continued)

Lab Sample ID: LCS 480-517162/89
Matrix: Water
Analysis Batch: 517162

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			30.0	28.46		mg/L		95	90 - 110		

Lab Sample ID: 480-166205-1 MS
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	36.1	F1	20.0	61.11		mg/L		125	60 - 128		

Lab Sample ID: 480-166205-1 MSD
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	36.1	F1	20.0	61.89	F1	mg/L		129	60 - 128	1	20

Lab Sample ID: 480-166205-6 MS
Matrix: Water
Analysis Batch: 517162

Client Sample ID: D-3S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	55.3		20.0	77.38		mg/L		110	60 - 128		

Lab Sample ID: 480-166205-6 MSD
Matrix: Water
Analysis Batch: 517162

Client Sample ID: D-3S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	55.3		20.0	76.72		mg/L		107	60 - 128	1	20

Lab Sample ID: 480-166205-19 MS
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	ND		20.0	19.78		mg/L		99	60 - 128		

Lab Sample ID: 480-166205-19 MSD
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND		20.0	19.11		mg/L		96	60 - 128	3	20

Lab Sample ID: 480-166205-20 MS
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	ND		20.0	19.05		mg/L		95	60 - 128		

Method: D516-90, 02 - Sulfate

Lab Sample ID: 480-166205-20 MSD
Matrix: Water
Analysis Batch: 517162

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND		20.0	20.55		mg/L		103	60 - 128	8	20

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

Lab Sample ID: MB 480-517542/1
Matrix: Water
Analysis Batch: 517542

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			02/13/20 17:11	1

Lab Sample ID: LCS 480-517542/2
Matrix: Water
Analysis Batch: 517542

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	509	504.0		mg/L		99	85 - 115

Lab Sample ID: 480-166205-15 DU
Matrix: Water
Analysis Batch: 517542

Client Sample ID: U-5D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	387		374.0		mg/L		3	10

Lab Sample ID: MB 480-517543/1
Matrix: Water
Analysis Batch: 517543

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			02/13/20 17:53	1

Lab Sample ID: LCS 480-517543/2
Matrix: Water
Analysis Batch: 517543

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	501	504.0		mg/L		101	85 - 115

Lab Sample ID: 480-166205-13 DU
Matrix: Water
Analysis Batch: 517543

Client Sample ID: U-4D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	385		389.0		mg/L		1	10

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 480-517161/19
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 18:51	1

Lab Sample ID: MB 480-517161/31
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 18:57	1

Lab Sample ID: MB 480-517161/43
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 19:12	1

Lab Sample ID: MB 480-517161/53
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 19:21	1

Lab Sample ID: MB 480-517161/60
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 19:29	1

Lab Sample ID: MB 480-517161/67
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 19:36	1

Lab Sample ID: MB 480-517161/79
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/11/20 20:55	1

Lab Sample ID: LCS 480-517161/20
Matrix: Water
Analysis Batch: 517161
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			25.0	27.07		mg/L		108	90 - 110		

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: LCS 480-517161/32
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.27		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517161/44
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.27		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517161/54
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.36		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517161/61
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.31		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517161/68
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.35		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517161/80
Matrix: Water
Analysis Batch: 517161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.13		mg/L		109	90 - 110

Lab Sample ID: 480-166205-5 MS
Matrix: Water
Analysis Batch: 517161

Client Sample ID: D-3D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	75.2		20.0	91.01		mg/L		79	74 - 131

Lab Sample ID: 480-166205-5 MSD
Matrix: Water
Analysis Batch: 517161

Client Sample ID: D-3D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	75.2		20.0	92.34		mg/L		86	74 - 131	1	20

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: 480-166205-8 MS
Matrix: Water
Analysis Batch: 517161

Client Sample ID: D-4S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	49.3		20.0	68.04		mg/L		94	74 - 131

Lab Sample ID: 480-166205-8 MSD
Matrix: Water
Analysis Batch: 517161

Client Sample ID: D-4S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	49.3		20.0	68.59		mg/L		96	74 - 131	1	20

Lab Sample ID: 480-166205-19 MS
Matrix: Water
Analysis Batch: 517161

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		20.0	22.62		mg/L		113	74 - 131

Lab Sample ID: 480-166205-19 MSD
Matrix: Water
Analysis Batch: 517161

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		20.0	22.26		mg/L		111	74 - 131	2	20

Lab Sample ID: 480-166205-20 MS
Matrix: Water
Analysis Batch: 517161

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		20.0	22.78		mg/L		114	74 - 131

Lab Sample ID: 480-166205-20 MSD
Matrix: Water
Analysis Batch: 517161

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		20.0	22.26		mg/L		111	74 - 131	2	20

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 480-517278/27
Matrix: Water
Analysis Batch: 517278

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			02/12/20 12:02	1

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: MB 480-517278/3
Matrix: Water
Analysis Batch: 517278

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			02/12/20 10:46	1

Lab Sample ID: LCS 480-517278/28
Matrix: Water
Analysis Batch: 517278

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	0.990		mg/L		99	90 - 110

Lab Sample ID: LCS 480-517278/4
Matrix: Water
Analysis Batch: 517278

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	0.990		mg/L		99	90 - 110

Lab Sample ID: 480-166205-1 MS
Matrix: Water
Analysis Batch: 517278

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.080	F1	1.00	1.07		mg/L		99	86 - 111

Lab Sample ID: 480-166205-1 MSD
Matrix: Water
Analysis Batch: 517278

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.080	F1	1.00	1.06		mg/L		98	86 - 111	1	20

Lab Sample ID: 480-166205-16 MS
Matrix: Water
Analysis Batch: 517278

Client Sample ID: U-5S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.11	F1	1.00	1.12		mg/L		101	86 - 111

Lab Sample ID: 480-166205-16 MSD
Matrix: Water
Analysis Batch: 517278

Client Sample ID: U-5S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.11	F1	1.00	1.10		mg/L		99	86 - 111	2	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-517644/23
Matrix: Water
Analysis Batch: 517644

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

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

Lab Sample ID: LCS 480-517644/45
Matrix: Water
Analysis Batch: 517644

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

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

Lab Sample ID: 480-166205-2 DU
Matrix: Water
Analysis Batch: 517644

Client Sample ID: D-1S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.5	HF		7.5		SU				0.1	5
Temperature	19.5	HF		19.5		Degrees C				0.05	10

Lab Sample ID: 480-166205-12 DU
Matrix: Water
Analysis Batch: 517644

Client Sample ID: D-9
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.7	HF		7.7		SU				0.1	5
Temperature	19.8	HF		19.7		Degrees C				0.7	10

Lab Sample ID: LCS 480-517703/23
Matrix: Water
Analysis Batch: 517703

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

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

Lab Sample ID: 480-166205-18 DU
Matrix: Water
Analysis Batch: 517703

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.3	HF		7.4		SU				0.5	5
Temperature	19.3	HF		18.9		Degrees C				2	10

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-460330/23-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460330

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01944	U	0.0468	0.0468	1.00	0.110	pCi/L	02/14/20 08:07	03/09/20 11:47	1

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-460330/23-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460330

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	02/14/20 08:07	03/09/20 11:47	1

Lab Sample ID: LCS 160-460330/1-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460330

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	8.913		0.972	1.00	0.145	pCi/L	79	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	102		40 - 110

Lab Sample ID: LCSD 160-460330/2-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 460330

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	8.778		0.953	1.00	0.114	pCi/L	77	75 - 125	0.07	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	93.2		40 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-460333/23-A
Matrix: Water
Analysis Batch: 462660

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460333

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.04769	U	0.192	0.193	1.00	0.338	pCi/L	02/14/20 08:56	03/03/20 17:49	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	02/14/20 08:56	03/03/20 17:49	1
Y Carrier	94.6		40 - 110	02/14/20 08:56	03/03/20 17:49	1

Lab Sample ID: LCS 160-460333/1-A
Matrix: Water
Analysis Batch: 462661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460333

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.05	8.348		1.00	1.00	0.444	pCi/L	92	75 - 125		

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-460333/1-A
Matrix: Water
Analysis Batch: 462661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460333

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	102		40 - 110
Y Carrier	89.0		40 - 110

Lab Sample ID: LCSD 160-460333/2-A
Matrix: Water
Analysis Batch: 462661

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 460333

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.05	8.341		1.02	1.00	0.452	pCi/L	92	75 - 125	0	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	93.2		40 - 110
Y Carrier	87.1		40 - 110

Metals

Prep Batch: 517172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	3005A	
480-166205-2	D-1S	Total/NA	Water	3005A	
480-166205-3	D-2D	Total/NA	Water	3005A	
480-166205-4	D-2S	Total/NA	Water	3005A	
480-166205-5	D-3D	Total/NA	Water	3005A	
480-166205-6	D-3S	Total/NA	Water	3005A	
480-166205-7	D-4D	Total/NA	Water	3005A	
480-166205-8	D-4S	Total/NA	Water	3005A	
480-166205-9	D-5D	Total/NA	Water	3005A	
480-166205-10	D-5S2	Total/NA	Water	3005A	
480-166205-11	D-8	Total/NA	Water	3005A	
480-166205-12	D-9	Total/NA	Water	3005A	
480-166205-13	U-4D	Total/NA	Water	3005A	
480-166205-14	U-4S	Total/NA	Water	3005A	
480-166205-15	U-5D	Total/NA	Water	3005A	
480-166205-16	U-5S	Total/NA	Water	3005A	
480-166205-17	DUP-1	Total/NA	Water	3005A	
480-166205-18	DUP-2	Total/NA	Water	3005A	
480-166205-19	FIELD BLANK	Total/NA	Water	3005A	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	3005A	
MB 480-517172/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-517172/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-166205-1 MS	D-1D	Total/NA	Water	3005A	
480-166205-1 MSD	D-1D	Total/NA	Water	3005A	

Prep Batch: 517173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	3020A	
480-166205-2	D-1S	Total/NA	Water	3020A	
480-166205-3	D-2D	Total/NA	Water	3020A	
480-166205-4	D-2S	Total/NA	Water	3020A	
480-166205-5	D-3D	Total/NA	Water	3020A	
480-166205-6	D-3S	Total/NA	Water	3020A	
480-166205-7	D-4D	Total/NA	Water	3020A	
480-166205-8	D-4S	Total/NA	Water	3020A	
480-166205-9	D-5D	Total/NA	Water	3020A	
480-166205-10	D-5S2	Total/NA	Water	3020A	
480-166205-11	D-8	Total/NA	Water	3020A	
480-166205-12	D-9	Total/NA	Water	3020A	
480-166205-13	U-4D	Total/NA	Water	3020A	
480-166205-14	U-4S	Total/NA	Water	3020A	
480-166205-15	U-5D	Total/NA	Water	3020A	
480-166205-16	U-5S	Total/NA	Water	3020A	
480-166205-17	DUP-1	Total/NA	Water	3020A	
480-166205-18	DUP-2	Total/NA	Water	3020A	
480-166205-19	FIELD BLANK	Total/NA	Water	3020A	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	3020A	
MB 480-517173/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-517173/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-166205-2 MS	D-1S	Total/NA	Water	3020A	
480-166205-2 MSD	D-1S	Total/NA	Water	3020A	

Metals

Analysis Batch: 517376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	6020B	517173
480-166205-2	D-1S	Total/NA	Water	6020B	517173
480-166205-3	D-2D	Total/NA	Water	6020B	517173
480-166205-4	D-2S	Total/NA	Water	6020B	517173
480-166205-5	D-3D	Total/NA	Water	6020B	517173
480-166205-6	D-3S	Total/NA	Water	6020B	517173
480-166205-7	D-4D	Total/NA	Water	6020B	517173
480-166205-8	D-4S	Total/NA	Water	6020B	517173
480-166205-9	D-5D	Total/NA	Water	6020B	517173
480-166205-10	D-5S2	Total/NA	Water	6020B	517173
480-166205-11	D-8	Total/NA	Water	6020B	517173
480-166205-12	D-9	Total/NA	Water	6020B	517173
480-166205-13	U-4D	Total/NA	Water	6020B	517173
480-166205-14	U-4S	Total/NA	Water	6020B	517173
480-166205-15	U-5D	Total/NA	Water	6020B	517173
480-166205-16	U-5S	Total/NA	Water	6020B	517173
480-166205-17	DUP-1	Total/NA	Water	6020B	517173
480-166205-18	DUP-2	Total/NA	Water	6020B	517173
480-166205-19	FIELD BLANK	Total/NA	Water	6020B	517173
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	6020B	517173
MB 480-517173/1-A	Method Blank	Total/NA	Water	6020B	517173
LCS 480-517173/2-A	Lab Control Sample	Total/NA	Water	6020B	517173
480-166205-2 MS	D-1S	Total/NA	Water	6020B	517173
480-166205-2 MSD	D-1S	Total/NA	Water	6020B	517173

Analysis Batch: 517403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	6010D	517172
480-166205-2	D-1S	Total/NA	Water	6010D	517172
480-166205-3	D-2D	Total/NA	Water	6010D	517172
480-166205-4	D-2S	Total/NA	Water	6010D	517172
480-166205-5	D-3D	Total/NA	Water	6010D	517172
480-166205-6	D-3S	Total/NA	Water	6010D	517172
480-166205-7	D-4D	Total/NA	Water	6010D	517172
480-166205-8	D-4S	Total/NA	Water	6010D	517172
480-166205-9	D-5D	Total/NA	Water	6010D	517172
480-166205-10	D-5S2	Total/NA	Water	6010D	517172
480-166205-11	D-8	Total/NA	Water	6010D	517172
480-166205-12	D-9	Total/NA	Water	6010D	517172
480-166205-13	U-4D	Total/NA	Water	6010D	517172
480-166205-14	U-4S	Total/NA	Water	6010D	517172
480-166205-15	U-5D	Total/NA	Water	6010D	517172
480-166205-16	U-5S	Total/NA	Water	6010D	517172
480-166205-17	DUP-1	Total/NA	Water	6010D	517172
480-166205-18	DUP-2	Total/NA	Water	6010D	517172
480-166205-19	FIELD BLANK	Total/NA	Water	6010D	517172
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	6010D	517172
MB 480-517172/1-A	Method Blank	Total/NA	Water	6010D	517172
LCS 480-517172/2-A	Lab Control Sample	Total/NA	Water	6010D	517172
480-166205-1 MS	D-1D	Total/NA	Water	6010D	517172
480-166205-1 MSD	D-1D	Total/NA	Water	6010D	517172

General Chemistry

Analysis Batch: 517161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	SM 4500 Cl- E	
480-166205-2	D-1S	Total/NA	Water	SM 4500 Cl- E	
480-166205-3	D-2D	Total/NA	Water	SM 4500 Cl- E	
480-166205-4	D-2S	Total/NA	Water	SM 4500 Cl- E	
480-166205-5	D-3D	Total/NA	Water	SM 4500 Cl- E	
480-166205-6	D-3S	Total/NA	Water	SM 4500 Cl- E	
480-166205-7	D-4D	Total/NA	Water	SM 4500 Cl- E	
480-166205-8	D-4S	Total/NA	Water	SM 4500 Cl- E	
480-166205-9	D-5D	Total/NA	Water	SM 4500 Cl- E	
480-166205-10	D-5S2	Total/NA	Water	SM 4500 Cl- E	
480-166205-11	D-8	Total/NA	Water	SM 4500 Cl- E	
480-166205-12	D-9	Total/NA	Water	SM 4500 Cl- E	
480-166205-13	U-4D	Total/NA	Water	SM 4500 Cl- E	
480-166205-14	U-4S	Total/NA	Water	SM 4500 Cl- E	
480-166205-15	U-5D	Total/NA	Water	SM 4500 Cl- E	
480-166205-16	U-5S	Total/NA	Water	SM 4500 Cl- E	
480-166205-17	DUP-1	Total/NA	Water	SM 4500 Cl- E	
480-166205-18	DUP-2	Total/NA	Water	SM 4500 Cl- E	
480-166205-19	FIELD BLANK	Total/NA	Water	SM 4500 Cl- E	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/19	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/31	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/43	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/53	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/60	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/67	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517161/79	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/20	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/32	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/44	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/54	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/61	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/68	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517161/80	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
480-166205-5 MS	D-3D	Total/NA	Water	SM 4500 Cl- E	
480-166205-5 MSD	D-3D	Total/NA	Water	SM 4500 Cl- E	
480-166205-8 MS	D-4S	Total/NA	Water	SM 4500 Cl- E	
480-166205-8 MSD	D-4S	Total/NA	Water	SM 4500 Cl- E	
480-166205-19 MS	FIELD BLANK	Total/NA	Water	SM 4500 Cl- E	
480-166205-19 MSD	FIELD BLANK	Total/NA	Water	SM 4500 Cl- E	
480-166205-20 MS	EQUIPMENT BLANK	Total/NA	Water	SM 4500 Cl- E	
480-166205-20 MSD	EQUIPMENT BLANK	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 517162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	D516-90, 02	
480-166205-2	D-1S	Total/NA	Water	D516-90, 02	
480-166205-3	D-2D	Total/NA	Water	D516-90, 02	
480-166205-4	D-2S	Total/NA	Water	D516-90, 02	
480-166205-5	D-3D	Total/NA	Water	D516-90, 02	
480-166205-6	D-3S	Total/NA	Water	D516-90, 02	

General Chemistry (Continued)

Analysis Batch: 517162 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-7	D-4D	Total/NA	Water	D516-90, 02	
480-166205-8	D-4S	Total/NA	Water	D516-90, 02	
480-166205-9	D-5D	Total/NA	Water	D516-90, 02	
480-166205-10	D-5S2	Total/NA	Water	D516-90, 02	
480-166205-11	D-8	Total/NA	Water	D516-90, 02	
480-166205-12	D-9	Total/NA	Water	D516-90, 02	
480-166205-13	U-4D	Total/NA	Water	D516-90, 02	
480-166205-14	U-4S	Total/NA	Water	D516-90, 02	
480-166205-15	U-5D	Total/NA	Water	D516-90, 02	
480-166205-16	U-5S	Total/NA	Water	D516-90, 02	
480-166205-17	DUP-1	Total/NA	Water	D516-90, 02	
480-166205-18	DUP-2	Total/NA	Water	D516-90, 02	
480-166205-19	FIELD BLANK	Total/NA	Water	D516-90, 02	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	D516-90, 02	
MB 480-517162/43	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-517162/63	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-517162/88	Method Blank	Total/NA	Water	D516-90, 02	
LCS 480-517162/44	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-517162/64	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-517162/89	Lab Control Sample	Total/NA	Water	D516-90, 02	
480-166205-1 MS	D-1D	Total/NA	Water	D516-90, 02	
480-166205-1 MSD	D-1D	Total/NA	Water	D516-90, 02	
480-166205-6 MS	D-3S	Total/NA	Water	D516-90, 02	
480-166205-6 MSD	D-3S	Total/NA	Water	D516-90, 02	
480-166205-19 MS	FIELD BLANK	Total/NA	Water	D516-90, 02	
480-166205-19 MSD	FIELD BLANK	Total/NA	Water	D516-90, 02	
480-166205-20 MS	EQUIPMENT BLANK	Total/NA	Water	D516-90, 02	
480-166205-20 MSD	EQUIPMENT BLANK	Total/NA	Water	D516-90, 02	

Analysis Batch: 517278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	SM 4500 F C	
480-166205-2	D-1S	Total/NA	Water	SM 4500 F C	
480-166205-3	D-2D	Total/NA	Water	SM 4500 F C	
480-166205-4	D-2S	Total/NA	Water	SM 4500 F C	
480-166205-5	D-3D	Total/NA	Water	SM 4500 F C	
480-166205-6	D-3S	Total/NA	Water	SM 4500 F C	
480-166205-7	D-4D	Total/NA	Water	SM 4500 F C	
480-166205-8	D-4S	Total/NA	Water	SM 4500 F C	
480-166205-9	D-5D	Total/NA	Water	SM 4500 F C	
480-166205-10	D-5S2	Total/NA	Water	SM 4500 F C	
480-166205-11	D-8	Total/NA	Water	SM 4500 F C	
480-166205-12	D-9	Total/NA	Water	SM 4500 F C	
480-166205-13	U-4D	Total/NA	Water	SM 4500 F C	
480-166205-14	U-4S	Total/NA	Water	SM 4500 F C	
480-166205-15	U-5D	Total/NA	Water	SM 4500 F C	
480-166205-16	U-5S	Total/NA	Water	SM 4500 F C	
480-166205-17	DUP-1	Total/NA	Water	SM 4500 F C	
480-166205-18	DUP-2	Total/NA	Water	SM 4500 F C	
480-166205-19	FIELD BLANK	Total/NA	Water	SM 4500 F C	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 F C	

General Chemistry (Continued)

Analysis Batch: 517278 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-517278/27	Method Blank	Total/NA	Water	SM 4500 F C	
MB 480-517278/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 480-517278/28	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCS 480-517278/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
480-166205-1 MS	D-1D	Total/NA	Water	SM 4500 F C	
480-166205-1 MSD	D-1D	Total/NA	Water	SM 4500 F C	
480-166205-16 MS	U-5S	Total/NA	Water	SM 4500 F C	
480-166205-16 MSD	U-5S	Total/NA	Water	SM 4500 F C	

Analysis Batch: 517542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	SM 2540C	
480-166205-2	D-1S	Total/NA	Water	SM 2540C	
480-166205-3	D-2D	Total/NA	Water	SM 2540C	
480-166205-4	D-2S	Total/NA	Water	SM 2540C	
480-166205-5	D-3D	Total/NA	Water	SM 2540C	
480-166205-6	D-3S	Total/NA	Water	SM 2540C	
480-166205-7	D-4D	Total/NA	Water	SM 2540C	
480-166205-8	D-4S	Total/NA	Water	SM 2540C	
480-166205-9	D-5D	Total/NA	Water	SM 2540C	
480-166205-10	D-5S2	Total/NA	Water	SM 2540C	
480-166205-11	D-8	Total/NA	Water	SM 2540C	
480-166205-12	D-9	Total/NA	Water	SM 2540C	
480-166205-14	U-4S	Total/NA	Water	SM 2540C	
480-166205-15	U-5D	Total/NA	Water	SM 2540C	
MB 480-517542/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-517542/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-166205-15 DU	U-5D	Total/NA	Water	SM 2540C	

Analysis Batch: 517543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-13	U-4D	Total/NA	Water	SM 2540C	
480-166205-16	U-5S	Total/NA	Water	SM 2540C	
480-166205-17	DUP-1	Total/NA	Water	SM 2540C	
480-166205-18	DUP-2	Total/NA	Water	SM 2540C	
480-166205-19	FIELD BLANK	Total/NA	Water	SM 2540C	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-517543/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-517543/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-166205-13 DU	U-4D	Total/NA	Water	SM 2540C	

Analysis Batch: 517644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	SM 4500 H+ B	
480-166205-2	D-1S	Total/NA	Water	SM 4500 H+ B	
480-166205-3	D-2D	Total/NA	Water	SM 4500 H+ B	
480-166205-4	D-2S	Total/NA	Water	SM 4500 H+ B	
480-166205-5	D-3D	Total/NA	Water	SM 4500 H+ B	
480-166205-6	D-3S	Total/NA	Water	SM 4500 H+ B	
480-166205-7	D-4D	Total/NA	Water	SM 4500 H+ B	
480-166205-8	D-4S	Total/NA	Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 517644 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-9	D-5D	Total/NA	Water	SM 4500 H+ B	
480-166205-10	D-5S2	Total/NA	Water	SM 4500 H+ B	
480-166205-11	D-8	Total/NA	Water	SM 4500 H+ B	
480-166205-12	D-9	Total/NA	Water	SM 4500 H+ B	
480-166205-13	U-4D	Total/NA	Water	SM 4500 H+ B	
LCS 480-517644/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-517644/45	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-166205-2 DU	D-1S	Total/NA	Water	SM 4500 H+ B	
480-166205-12 DU	D-9	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 517703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-14	U-4S	Total/NA	Water	SM 4500 H+ B	
480-166205-15	U-5D	Total/NA	Water	SM 4500 H+ B	
480-166205-16	U-5S	Total/NA	Water	SM 4500 H+ B	
480-166205-17	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-166205-18	DUP-2	Total/NA	Water	SM 4500 H+ B	
480-166205-19	FIELD BLANK	Total/NA	Water	SM 4500 H+ B	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
LCS 480-517703/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-166205-18 DU	DUP-2	Total/NA	Water	SM 4500 H+ B	

Rad

Prep Batch: 460330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	PrecSep-21	
480-166205-2	D-1S	Total/NA	Water	PrecSep-21	
480-166205-3	D-2D	Total/NA	Water	PrecSep-21	
480-166205-4	D-2S	Total/NA	Water	PrecSep-21	
480-166205-5	D-3D	Total/NA	Water	PrecSep-21	
480-166205-6	D-3S	Total/NA	Water	PrecSep-21	
480-166205-7	D-4D	Total/NA	Water	PrecSep-21	
480-166205-8	D-4S	Total/NA	Water	PrecSep-21	
480-166205-9	D-5D	Total/NA	Water	PrecSep-21	
480-166205-10	D-5S2	Total/NA	Water	PrecSep-21	
480-166205-11	D-8	Total/NA	Water	PrecSep-21	
480-166205-12	D-9	Total/NA	Water	PrecSep-21	
480-166205-13	U-4D	Total/NA	Water	PrecSep-21	
480-166205-14	U-4S	Total/NA	Water	PrecSep-21	
480-166205-15	U-5D	Total/NA	Water	PrecSep-21	
480-166205-16	U-5S	Total/NA	Water	PrecSep-21	
480-166205-17	DUP-1	Total/NA	Water	PrecSep-21	
480-166205-18	DUP-2	Total/NA	Water	PrecSep-21	
480-166205-19	FIELD BLANK	Total/NA	Water	PrecSep-21	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-460330/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-460330/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-460330/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

QC Association Summary

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Rad

Prep Batch: 460333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166205-1	D-1D	Total/NA	Water	PrecSep_0	
480-166205-2	D-1S	Total/NA	Water	PrecSep_0	
480-166205-3	D-2D	Total/NA	Water	PrecSep_0	
480-166205-4	D-2S	Total/NA	Water	PrecSep_0	
480-166205-5	D-3D	Total/NA	Water	PrecSep_0	
480-166205-6	D-3S	Total/NA	Water	PrecSep_0	
480-166205-7	D-4D	Total/NA	Water	PrecSep_0	
480-166205-8	D-4S	Total/NA	Water	PrecSep_0	
480-166205-9	D-5D	Total/NA	Water	PrecSep_0	
480-166205-10	D-5S2	Total/NA	Water	PrecSep_0	
480-166205-11	D-8	Total/NA	Water	PrecSep_0	
480-166205-12	D-9	Total/NA	Water	PrecSep_0	
480-166205-13	U-4D	Total/NA	Water	PrecSep_0	
480-166205-14	U-4S	Total/NA	Water	PrecSep_0	
480-166205-15	U-5D	Total/NA	Water	PrecSep_0	
480-166205-16	U-5S	Total/NA	Water	PrecSep_0	
480-166205-17	DUP-1	Total/NA	Water	PrecSep_0	
480-166205-18	DUP-2	Total/NA	Water	PrecSep_0	
480-166205-19	FIELD BLANK	Total/NA	Water	PrecSep_0	
480-166205-20	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-460333/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-460333/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-460333/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-1D
Lab Sample ID: 480-166205-1
Date Collected: 02/07/20 12:20
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 19:37	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 15:53	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 19:22	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:51	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 10:54	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:12	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:43	KLS	TAL SL

Client Sample ID: D-1S
Lab Sample ID: 480-166205-2
Date Collected: 02/07/20 12:05
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:06	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 15:55	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:24	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:51	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:02	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:15	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:43	KLS	TAL SL

Client Sample ID: D-2D
Lab Sample ID: 480-166205-3
Date Collected: 02/07/20 13:15
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:10	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:06	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:25	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF

Client Sample ID: D-2D
Lab Sample ID: 480-166205-3
Date Collected: 02/07/20 13:15
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:51	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:04	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:21	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:44	KLS	TAL SL

Client Sample ID: D-2S
Lab Sample ID: 480-166205-4
Date Collected: 02/07/20 13:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:13	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:09	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:25	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:51	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:08	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:24	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:44	KLS	TAL SL

Client Sample ID: D-3D
Lab Sample ID: 480-166205-5
Date Collected: 02/07/20 11:40
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:17	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:11	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 19:26	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	517161	02/11/20 19:38	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:10	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:27	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-3D
Lab Sample ID: 480-166205-5
Date Collected: 02/07/20 11:40
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:44	KLS	TAL SL

Client Sample ID: D-3S
Lab Sample ID: 480-166205-6
Date Collected: 02/07/20 11:25
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:21	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:20	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 20:49	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		3	517161	02/11/20 19:15	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:23	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:29	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462661	03/03/20 17:44	KLS	TAL SL

Client Sample ID: D-4D
Lab Sample ID: 480-166205-7
Date Collected: 02/07/20 14:05
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:24	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:23	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:30	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:57	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:26	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:32	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:53	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:47	KLS	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-4S
Lab Sample ID: 480-166205-8
Date Collected: 02/07/20 13:50
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:28	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:25	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:31	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	517161	02/11/20 19:15	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:28	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:35	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: D-5D
Lab Sample ID: 480-166205-9
Date Collected: 02/07/20 11:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:32	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:27	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 20:50	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 19:36	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:31	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:38	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: D-5S2
Lab Sample ID: 480-166205-10
Date Collected: 02/07/20 10:45
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:35	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:29	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 21:26	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF

Client Sample ID: D-5S2
Lab Sample ID: 480-166205-10
Date Collected: 02/07/20 10:45
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		5	517161	02/11/20 19:40	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:34	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:44	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: D-8
Lab Sample ID: 480-166205-11
Date Collected: 02/07/20 15:05
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:50	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:32	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 20:51	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 19:36	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:37	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:47	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: D-9
Lab Sample ID: 480-166205-12
Date Collected: 02/07/20 15:30
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:54	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:34	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 20:51	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 19:36	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:40	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:49	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-9
Lab Sample ID: 480-166205-12
Date Collected: 02/07/20 15:30
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: U-4D
Lab Sample ID: 480-166205-13
Date Collected: 02/06/20 13:45
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 20:58	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:36	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 20:51	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:59	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:42	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517644	02/13/20 16:55	KEB	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: U-4S
Lab Sample ID: 480-166205-14
Date Collected: 02/06/20 13:30
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:01	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:39	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 20:51	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	517161	02/11/20 19:17	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:45	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:34	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: U-5D
Lab Sample ID: 480-166205-15
Date Collected: 02/06/20 16:05
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:05	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:41	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:35	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517542	02/13/20 17:11	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:59	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 11:48	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:37	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:48	KLS	TAL SL

Client Sample ID: U-5S
Lab Sample ID: 480-166205-16
Date Collected: 02/06/20 15:50
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:09	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:50	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 20:51	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	517161	02/11/20 19:17	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 12:07	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:39	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:49	KLS	TAL SL

Client Sample ID: DUP-1
Lab Sample ID: 480-166205-17
Date Collected: 02/06/20 00:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:13	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:52	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:35	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: DUP-1
Lab Sample ID: 480-166205-17
Date Collected: 02/06/20 00:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 20:55	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 12:14	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:42	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:49	KLS	TAL SL

Client Sample ID: DUP-2
Lab Sample ID: 480-166205-18
Date Collected: 02/07/20 00:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:16	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:55	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517162	02/11/20 19:37	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		3	517161	02/11/20 19:23	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 12:17	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:47	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:49	KLS	TAL SL

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-166205-19
Date Collected: 02/07/20 16:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:20	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:57	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:37	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:57	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 12:24	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:52	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-166205-19
Date Collected: 02/07/20 16:00
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:49	KLS	TAL SL

Client Sample ID: EQUIPMENT BLANK
Lab Sample ID: 480-166205-20
Date Collected: 02/07/20 15:45
Matrix: Water
Date Received: 02/11/20 14:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			517172	02/12/20 08:10	EMB	TAL BUF
Total/NA	Analysis	6010D		1	517403	02/12/20 21:35	AMH	TAL BUF
Total/NA	Prep	3020A			517173	02/12/20 08:00	EMB	TAL BUF
Total/NA	Analysis	6020B		1	517376	02/12/20 16:59	KMP	TAL BUF
Total/NA	Analysis	D516-90, 02		1	517162	02/11/20 19:38	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517543	02/13/20 17:53	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517161	02/11/20 18:57	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517278	02/12/20 12:29	KEB	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:54	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460330	02/14/20 08:07	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 11:47	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460333	02/14/20 08:56	RBR	TAL SL
Total/NA	Analysis	904.0		1	462660	03/03/20 17:49	KLS	TAL SL

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

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	1524384	12-31-20

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

Analysis Method	Prep Method	Matrix	Analyte
D516-90, 02		Water	Sulfate
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

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

Method Summary

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL BUF
6020B	Metals (ICP/MS)	SW846	TAL BUF
D516-90, 02	Sulfate	ASTM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 Cl- E	Chloride, Total	SM	TAL BUF
SM 4500 F C	Fluoride	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF

Protocol References:

ASTM = ASTM International

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:

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

Sample Summary

Client: Waste Connections, Inc.
Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-166205-1	D-1D	Water	02/07/20 12:20	02/11/20 14:54	
480-166205-2	D-1S	Water	02/07/20 12:05	02/11/20 14:54	
480-166205-3	D-2D	Water	02/07/20 13:15	02/11/20 14:54	
480-166205-4	D-2S	Water	02/07/20 13:00	02/11/20 14:54	
480-166205-5	D-3D	Water	02/07/20 11:40	02/11/20 14:54	
480-166205-6	D-3S	Water	02/07/20 11:25	02/11/20 14:54	
480-166205-7	D-4D	Water	02/07/20 14:05	02/11/20 14:54	
480-166205-8	D-4S	Water	02/07/20 13:50	02/11/20 14:54	
480-166205-9	D-5D	Water	02/07/20 11:00	02/11/20 14:54	
480-166205-10	D-5S2	Water	02/07/20 10:45	02/11/20 14:54	
480-166205-11	D-8	Water	02/07/20 15:05	02/11/20 14:54	
480-166205-12	D-9	Water	02/07/20 15:30	02/11/20 14:54	
480-166205-13	U-4D	Water	02/06/20 13:45	02/11/20 14:54	
480-166205-14	U-4S	Water	02/06/20 13:30	02/11/20 14:54	
480-166205-15	U-5D	Water	02/06/20 16:05	02/11/20 14:54	
480-166205-16	U-5S	Water	02/06/20 15:50	02/11/20 14:54	
480-166205-17	DUP-1	Water	02/06/20 00:00	02/11/20 14:54	
480-166205-18	DUP-2	Water	02/07/20 00:00	02/11/20 14:54	
480-166205-19	FIELD BLANK	Water	02/07/20 16:00	02/11/20 14:54	
480-166205-20	EQUIPMENT BLANK	Water	02/07/20 15:45	02/11/20 14:54	

Quantitation Limit Exceptions Summary

Client: Waste Connections, Inc. Job ID: 480-166205-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

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

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
D516-90, 02	Sulfate	Water	Total/NA	mg/L	2.0	5.0
SM 4500 Cl- E	Chloride	Water	Total/NA	mg/L	0.50	1.0
SM 4500 F C	Fluoride	Water	Total/NA	mg/L	0.050	0.1

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

Chain of Custody Record

TestAmerica Minneapolis SC 213

eurofins | Environment Testing TestAmerica

Client Information	Sampler: N. Schlagel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-141754-30557.1
Client Contact: Nathaniel Beinemann	Phone: 651-792-6065	E-Mail: ryan.vandette@testamericainc.com		Page: Page 1 of 2
Company: Waste Connections, Inc.				Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			
City: Rosemount	TAT Requested (days): Standard			
State, Zip: MN, 55068				
Phone:	PO #: ~~Purchase Order Requested~~ 3063-20-00151			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Rosemount	Project #: 48013709			
Site: Minnesota	SSOW#:			

Analysis Requested

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, * - cify)

480-166205 Chain of Custody

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)	6010D, 6020B, 7470A	D616, SM4500_Cl_E, SM4500_H+	4500_F_C - Fluoride	2540C_Calcd - TDS	904.0 - Rad 228	903.0 - Rad 226	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D	D	
D-1S	2/7/20	12:05	G	Water			X	X	X	X	X	X	* All Appendix III Metals (Total)
D-2S	2/7/20	13:00	G	Water			X	X	X	X	X	X	
D-3S	2/7/20	11:25	G	Water			X	X	X	X	X	X	
D-4S	2/7/20	13:50	G	Water			X	X	X	X	X	X	
D-5S2	2/7/20	10:45	G	Water			X	X	X	X	X	X	Only Appendix III Metals (Total)
~~D-7~~				~~Water~~									
D-8	2/7/20	15:05	G	Water			X	X	X	X	X	X	Noted below:
D-9	2/7/20	15:30	G	Water			X	X	X	X	X	X	Barium
U-4D	2/6/20	13:45	G	Water			X	X	X	X	X	X	Radium 226 + 228
U-4S	2/6/20	13:30	G	Water			X	X	X	X	X	X	Cobalt
U-5D	2/6/20	16:05	G	Water			X	X	X	X	X	X	Chromium

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/10/20 1110	GES	[signature]	2-10-20 1110	Eurofins
Relinquished by: [signature]	Date/Time: 2-10-20 1700	Company	Received by: [signature]	Date/Time: 2/11/20 1000	Company TA
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: 1.0, 2.4, 2.2, 3.0, 3.4, 1.9, 2.3 #1 ICE

Ver: 01/16/2019

3/10/2020

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

Chain of Custody Record

eurofins

TestAmerica Minneapolis SC
213

Client Information	Sampler: N-Schlegel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-141754-30557.2
Client Contact: Nathaniel Beinemann	Phone: 651-792-6065	E-Mail: ryan.vandette@testamericainc.com		Page: Page 2 of 2
Company: Waste Connections, Inc.		Analysis Requested		Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Rosemount	TAT Requested (days): Standard			
State, Zip: MN, 55068				
Phone:	PO #: ~~Purchase Order Requested~~ 3063-20-00151			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Rosemount	Project #: 48013709			
Site: Minnesota	SSOW#:			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)	6010D, 6020B, 7470A	D516, SM4500_Cl_E, SM4500_H+	4600_F_C - Fluoride	2540C_Calcd - TDS	904.0 - Rad 228	903.0 - Rad 226	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D	D		
U-5S	2/6/20	15:50	6	Water			X	X	X	X	X	X		
D-1D	2/7/20	12:20	6	Water			X	X	X	X	X	X		* All Appendix III Metals (Totals)
D-2D	2/7/20	13:15	6	Water			X	X	X	X	X	X		
D-3D	2/7/20	11:40	6	Water			X	X	X	X	X	X		
D-4D	2/7/20	14:05	6	Water			X	X	X	X	X	X		Only Appendix III Metals (Total)
D-5D	2/7/20	11:00	6	Water			X	X	X	X	X	X		
Dup 1	2/6/20	—	6	Water			X	X	X	X	X	X		Noted below:
Dup 2	2/7/20	—	6	Water			X	X	X	X	X	X		Barium
Field Blank	2/7/20	16:00	6	Water			X	X	X	X	X	X		Radium 226 + 228
Equipment Blank	2/7/20	15:45	6	Water			X	X	X	X	X	X		Cobalt
~~D-7~~	~~2/7/20~~	~~14:50~~	~~6~~	~~Water~~			X	X	X	X	X	X		Chromium

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	2/10/20 1110		[signature]	2-10-20 1110	Eurofins
2	[signature]	2-10-20 1700	Eurofins	[signature]	2/11/20 1000	TA
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-166205-1

Login Number: 166205
List Number: 1
Creator: VanDette, Ryan T

List Source: Eurofins TestAmerica, Buffalo

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 480-166194-1
Client Project/Site: SKB Rosemount - CCR Groundwater III/IV

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

Attn: Nathaniel Beinemann

Authorized for release by:
3/10/2020 1:04:18 PM
Wyatt Watson, Project Management Assistant I
wyatt.watson@testamericainc.com

Designee for

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

Table of Contents

Definitions/Glossary

Client: Waste Connections, Inc. Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Job ID: 480-166194-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-166194-1

Receipt
The sample was received on 2/11/2020 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4º C.

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

General Chemistry
Methods SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following sample has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: D-7 (480-166194-1).

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

Narrative

Job Narrative
480-166194-2

Receipt
The sample was received on 2/11/2020 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4º C.

RAD
Method 903.0: Ra-226 Prep Batch 160-460327
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

D-7 (480-166194-1), (LCS 160-460327/1-A), (MB 160-460327/9-A), (160-37220-D-1-A) and (160-37220-D-1-B DU)

Method 904.0: Radium-228 Prep Batch 160-460328
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
D-7 (480-166194-1), (LCS 160-460328/1-A), (MB 160-460328/9-A), (160-37220-D-1-C) and (160-37220-D-1-D DU)

Method PrecSep_0: Radium 228 Prep Batch 160-460328:

The following sample was prepared at a reduced aliquot due to discoloration: D-7 (480-166194-1). Sample 480-166194-1 has a brown/yellow discoloration and cloudy appearance.

Method PrecSep-21: Radium 226 Prep Batch 160-460327:

The following sample was prepared at a reduced aliquot due to discoloration: D-7 (480-166194-1). Sample 480-166194-1 has a brown/yellow discoloration and cloudy appearance.

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

Detection Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-7
Lab Sample ID: 480-166194-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.56		0.0020		mg/L	1		6010C	Total/NA
Boron	0.12		0.020		mg/L	1		6010C	Total/NA
Calcium	182		0.50		mg/L	1		6010C	Total/NA
Chromium	0.27		0.0040		mg/L	1		6010C	Total/NA
Lead	0.074		0.010		mg/L	1		6010C	Total/NA
Barium	0.11		0.0020		mg/L	1		6010C	Dissolved
Arsenic	28.3		1.0		ug/L	1		6020A	Total/NA
Cobalt	82.0		0.30		ug/L	1		6020A	Total/NA
Molybdenum	3.6		1.0		ug/L	1		6020A	Total/NA
Thallium	4.0		0.20		ug/L	1		6020A	Total/NA
Mercury	0.38		0.20		ug/L	1		7470A	Total/NA
Sulfate	69.7		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	413		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	45.4		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.070	F1	0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.1	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	19.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-7
Date Collected: 02/10/20 14:50
Date Received: 02/11/20 10:00

Lab Sample ID: 480-166194-1
Matrix: Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.56**		0.0020		mg/L		02/13/20 08:30	02/13/20 16:29	1
Boron	**0.12**		0.020		mg/L		02/13/20 08:30	02/13/20 16:29	1
Calcium	**182**		0.50		mg/L		02/13/20 08:30	02/13/20 16:29	1
Chromium	**0.27**		0.0040		mg/L		02/13/20 08:30	02/13/20 16:29	1
Lead	**0.074**		0.010		mg/L		02/13/20 08:30	02/13/20 16:29	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015		mg/L		02/20/20 07:58	02/20/20 14:14	1
Barium	**0.11**		0.0020		mg/L		02/20/20 07:58	02/20/20 14:14	1
Lead	ND		0.010		mg/L		02/20/20 07:58	02/20/20 14:14	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**28.3**		1.0		ug/L		02/14/20 08:12	02/17/20 16:31	1
Cobalt	**82.0**		0.30		ug/L		02/14/20 08:12	02/17/20 16:31	1
Molybdenum	**3.6**		1.0		ug/L		02/14/20 08:12	02/20/20 14:42	1
Thallium	**4.0**		0.20		ug/L		02/14/20 08:12	02/17/20 16:31	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		ug/L		02/20/20 07:45	02/20/20 15:06	1
Thallium	ND		0.20		ug/L		02/20/20 07:45	02/20/20 15:06	1
Molybdenum	ND		1.0		ug/L		02/20/20 07:45	02/20/20 15:06	1
Cobalt	ND		0.30		ug/L		02/20/20 07:45	02/20/20 15:06	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.38**		0.20		ug/L		02/13/20 11:40	02/13/20 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**69.7**		4.0		mg/L			02/13/20 00:22	2
Total Dissolved Solids	**413**		10.0		mg/L			02/14/20 15:31	1
Chloride	**45.4**		0.50		mg/L			02/12/20 23:33	1
Fluoride	**0.070**	**F1**	0.050		mg/L			02/17/20 14:17	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.1**	**HF**	0.1		SU			02/14/20 14:32	1
Temperature	**19.8**	**HF**	0.001		Degrees C			02/14/20 14:32	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**2.06**		0.449	0.486	1.00	0.341	pCi/L	02/14/20 07:38	03/09/20 09:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.9*		*40 - 110*	*02/14/20 07:38*	*03/09/20 09:51*	*1*

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-7
Lab Sample ID: 480-166194-1
Date Collected: 02/10/20 14:50
Matrix: Water
Date Received: 02/11/20 10:00

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.00		0.799	0.845	1.00	1.00	pCi/L	02/14/20 07:52	03/04/20 18:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.9*		*40 - 110*	*02/14/20 07:52*	*03/04/20 18:05*	*1*
Y Carrier	*87.1*		*40 - 110*	*02/14/20 07:52*	*03/04/20 18:05*	*1*

Tracer/Carrier Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
480-166194-1	D-7	76.9
LCS 160-460327/1-A	Lab Control Sample	90.8
MB 160-460327/9-A	Method Blank	96.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
480-166194-1	D-7	76.9	87.1
LCS 160-460328/1-A	Lab Control Sample	90.8	88.2
MB 160-460328/9-A	Method Blank	96.0	88.2

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-517354/1-A
Matrix: Water
Analysis Batch: 517632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517354

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0020		mg/L		02/13/20 08:30	02/13/20 15:33	1
Boron	ND		0.020		mg/L		02/13/20 08:30	02/13/20 15:33	1
Calcium	ND		0.50		mg/L		02/13/20 08:30	02/13/20 15:33	1
Chromium	ND		0.0040		mg/L		02/13/20 08:30	02/13/20 15:33	1
Lead	ND		0.010		mg/L		02/13/20 08:30	02/13/20 15:33	1

Lab Sample ID: LCS 480-517354/2-A
Matrix: Water
Analysis Batch: 517632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517354

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.209		mg/L		104	80 - 120
Boron	0.200	0.198		mg/L		99	80 - 120
Calcium	10.0	9.90		mg/L		99	80 - 120
Chromium	0.200	0.199		mg/L		100	80 - 120
Lead	0.200	0.194		mg/L		97	80 - 120

Lab Sample ID: LCSD 480-517354/12-A
Matrix: Water
Analysis Batch: 517632

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 517354

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	0.200	0.206		mg/L		103	80 - 120	1	20
Boron	0.200	0.197		mg/L		99	80 - 120	0	20
Calcium	10.0	9.92		mg/L		99	80 - 120	0	20
Chromium	0.200	0.200		mg/L		100	80 - 120	0	20
Lead	0.200	0.193		mg/L		97	80 - 120	1	20

Lab Sample ID: MB 480-518101/1-C
Matrix: Water
Analysis Batch: 518503

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 518336

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015		mg/L		02/20/20 07:58	02/20/20 14:03	1
Barium	ND		0.0020		mg/L		02/20/20 07:58	02/20/20 14:03	1
Lead	ND		0.010		mg/L		02/20/20 07:58	02/20/20 14:03	1

Lab Sample ID: LCS 480-518101/2-C
Matrix: Water
Analysis Batch: 518503

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 518336

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.200	0.187		mg/L		93	80 - 120
Barium	0.200	0.200		mg/L		100	80 - 120
Lead	0.200	0.185		mg/L		92	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 480-518101/3-C
Matrix: Water
Analysis Batch: 518503

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 518336

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			0.200	0.194		mg/L		97	80 - 120	4	20
Barium			0.200	0.204		mg/L		102	80 - 120	2	20
Lead			0.200	0.190		mg/L		95	80 - 120	3	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 480-517559/1-A
Matrix: Water
Analysis Batch: 518033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		ug/L		02/14/20 08:12	02/17/20 16:15	1
Thallium	ND		0.20		ug/L		02/14/20 08:12	02/17/20 16:15	1
Cobalt	ND		0.30		ug/L		02/14/20 08:12	02/17/20 16:15	1

Lab Sample ID: MB 480-517559/1-A
Matrix: Water
Analysis Batch: 518450

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		1.0		ug/L		02/14/20 08:12	02/20/20 14:37	1

Lab Sample ID: LCS 480-517559/2-A
Matrix: Water
Analysis Batch: 518033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517559

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic			20.0	18.14		ug/L		91	80 - 120
Thallium			20.0	20.69		ug/L		103	80 - 120
Cobalt			20.0	19.85		ug/L		99	80 - 120

Lab Sample ID: LCS 480-517559/2-A
Matrix: Water
Analysis Batch: 518450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517559

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum			20.0	19.90		ug/L		100	80 - 120

Lab Sample ID: MB 480-518101/1-B
Matrix: Water
Analysis Batch: 518460

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 518301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		ug/L		02/20/20 07:45	02/20/20 14:59	1
Thallium	ND		0.20		ug/L		02/20/20 07:45	02/20/20 14:59	1
Molybdenum	ND		1.0		ug/L		02/20/20 07:45	02/20/20 14:59	1
Cobalt	ND		0.30		ug/L		02/20/20 07:45	02/20/20 14:59	1

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

Lab Sample ID: LCS 480-518101/2-B
Matrix: Water
Analysis Batch: 518460

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 518301

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			20.0	18.49		ug/L		92	80 - 120		
Thallium			20.0	20.27		ug/L		101	80 - 120		
Molybdenum			20.0	18.94		ug/L		95	80 - 120		
Cobalt			20.0	19.14		ug/L		96	80 - 120		

Lab Sample ID: LCSD 480-518101/3-B
Matrix: Water
Analysis Batch: 518460

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 518301

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			20.0	18.44		ug/L		92	80 - 120	0	20
Thallium			20.0	19.48		ug/L		97	80 - 120	4	20
Molybdenum			20.0	19.70		ug/L		99	80 - 120	4	20
Cobalt			20.0	19.29		ug/L		96	80 - 120	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-517439/1-A
Matrix: Water
Analysis Batch: 517536

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 517439

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		02/13/20 11:40	02/13/20 15:09	1

Lab Sample ID: LCS 480-517439/2-A
Matrix: Water
Analysis Batch: 517536

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 517439

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			6.67	7.33		ug/L		110	80 - 120		

Method: D516-90, 02 - Sulfate

Lab Sample ID: MB 480-517348/30
Matrix: Water
Analysis Batch: 517348

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			02/13/20 00:35	1

Lab Sample ID: LCS 480-517348/31
Matrix: Water
Analysis Batch: 517348

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			30.0	28.80		mg/L		96	90 - 110		

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

Lab Sample ID: MB 480-517693/1
Matrix: Water
Analysis Batch: 517693

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			02/14/20 15:31	1

Lab Sample ID: LCS 480-517693/2
Matrix: Water
Analysis Batch: 517693

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	501	532.0		mg/L		106	85 - 115

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 480-517346/19
Matrix: Water
Analysis Batch: 517346

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/12/20 22:10	1

Lab Sample ID: MB 480-517346/43
Matrix: Water
Analysis Batch: 517346

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			02/12/20 23:33	1

Lab Sample ID: LCS 480-517346/20
Matrix: Water
Analysis Batch: 517346

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	27.29		mg/L		109	90 - 110

Lab Sample ID: LCS 480-517346/44
Matrix: Water
Analysis Batch: 517346

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.16		mg/L		105	90 - 110

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 480-517951/3
Matrix: Water
Analysis Batch: 517951

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			02/17/20 14:12	1

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: LCS 480-517951/4
Matrix: Water
Analysis Batch: 517951

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			1.00	1.01		mg/L		101	90 - 110		

Lab Sample ID: 480-166194-1 MS
Matrix: Water
Analysis Batch: 517951

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	0.070	F1	1.00	1.29	F1	mg/L		122	86 - 111		

Lab Sample ID: 480-166194-1 MSD
Matrix: Water
Analysis Batch: 517951

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.070	F1	1.00	1.32	F1	mg/L		125	86 - 111	2	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-517703/1
Matrix: Water
Analysis Batch: 517703

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

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

Lab Sample ID: LCS 480-517703/23
Matrix: Water
Analysis Batch: 517703

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

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

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-460327/9-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460327

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.04366	U	0.0428	0.0430	1.00	0.121	pCi/L	02/14/20 07:38	03/09/20 09:51	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*02/14/20 07:38*	*03/09/20 09:51*	*1*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-460327/1-A
Matrix: Water
Analysis Batch: 463512

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460327

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.878		1.07	1.00	0.111	pCi/L	87	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.8*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-460328/9-A
Matrix: Water
Analysis Batch: 463127

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460328

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5358		0.263	0.268	1.00	0.386	pCi/L	02/14/20 07:52	03/04/20 18:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*02/14/20 07:52*	*03/04/20 18:06*	*1*
Y Carrier	*88.2*		*40 - 110*	*02/14/20 07:52*	*03/04/20 18:06*	*1*

Lab Sample ID: LCS 160-460328/1-A
Matrix: Water
Analysis Batch: 463127

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460328

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.05	8.480		1.02	1.00	0.437	pCi/L	94	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.8*		*40 - 110*
Y Carrier	*88.2*		*40 - 110*

Metals

Prep Batch: 517354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	3005A	
MB 480-517354/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-517354/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-517354/12-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Prep Batch: 517439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	7470A	
MB 480-517439/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-517439/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 517536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	7470A	517439
MB 480-517439/1-A	Method Blank	Total/NA	Water	7470A	517439
LCS 480-517439/2-A	Lab Control Sample	Total/NA	Water	7470A	517439

Prep Batch: 517559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	3020A	
MB 480-517559/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-517559/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 517632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	6010C	517354
MB 480-517354/1-A	Method Blank	Total/NA	Water	6010C	517354
LCS 480-517354/2-A	Lab Control Sample	Total/NA	Water	6010C	517354
LCSD 480-517354/12-A	Lab Control Sample Dup	Total/NA	Water	6010C	517354

Analysis Batch: 518033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	6020A	517559
MB 480-517559/1-A	Method Blank	Total/NA	Water	6020A	517559
LCS 480-517559/2-A	Lab Control Sample	Total/NA	Water	6020A	517559

Filtration Batch: 518101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Dissolved	Water	FILTRATION	
MB 480-518101/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 480-518101/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-518101/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 480-518101/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 480-518101/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
LCSD 480-518101/3-C	Lab Control Sample Dup	Dissolved	Water	FILTRATION	

Prep Batch: 518301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Dissolved	Water	3020A	518101
MB 480-518101/1-B	Method Blank	Dissolved	Water	3020A	518101
LCS 480-518101/2-B	Lab Control Sample	Dissolved	Water	3020A	518101

Metals (Continued)

Prep Batch: 518301 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-518101/3-B	Lab Control Sample Dup	Dissolved	Water	3020A	518101

Prep Batch: 518336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Dissolved	Water	3005A	518101
MB 480-518101/1-C	Method Blank	Dissolved	Water	3005A	518101
LCS 480-518101/2-C	Lab Control Sample	Dissolved	Water	3005A	518101
LCSD 480-518101/3-C	Lab Control Sample Dup	Dissolved	Water	3005A	518101

Analysis Batch: 518450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	6020A	517559
MB 480-517559/1-A	Method Blank	Total/NA	Water	6020A	517559
LCS 480-517559/2-A	Lab Control Sample	Total/NA	Water	6020A	517559

Analysis Batch: 518460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Dissolved	Water	6020A	518301
MB 480-518101/1-B	Method Blank	Dissolved	Water	6020A	518301
LCS 480-518101/2-B	Lab Control Sample	Dissolved	Water	6020A	518301
LCSD 480-518101/3-B	Lab Control Sample Dup	Dissolved	Water	6020A	518301

Analysis Batch: 518503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Dissolved	Water	6010C	518336
MB 480-518101/1-C	Method Blank	Dissolved	Water	6010C	518336
LCS 480-518101/2-C	Lab Control Sample	Dissolved	Water	6010C	518336
LCSD 480-518101/3-C	Lab Control Sample Dup	Dissolved	Water	6010C	518336

General Chemistry

Analysis Batch: 517346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	SM 4500 Cl- E	
MB 480-517346/19	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-517346/43	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517346/20	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-517346/44	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 517348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	D516-90, 02	
MB 480-517348/30	Method Blank	Total/NA	Water	D516-90, 02	
LCS 480-517348/31	Lab Control Sample	Total/NA	Water	D516-90, 02	

Analysis Batch: 517693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	SM 2540C	
MB 480-517693/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-517693/2	Lab Control Sample	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

General Chemistry

Analysis Batch: 517703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	SM 4500 H+ B	
LCS 480-517703/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-517703/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 517951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	SM 4500 F C	
MB 480-517951/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 480-517951/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
480-166194-1 MS	D-7	Total/NA	Water	SM 4500 F C	
480-166194-1 MSD	D-7	Total/NA	Water	SM 4500 F C	

Rad

Prep Batch: 460327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	PrecSep-21	
MB 160-460327/9-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-460327/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 460328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166194-1	D-7	Total/NA	Water	PrecSep_0	
MB 160-460328/9-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-460328/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Client Sample ID: D-7
Lab Sample ID: 480-166194-1
Date Collected: 02/10/20 14:50
Matrix: Water
Date Received: 02/11/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			518101	02/18/20 14:25	NSW	TAL BUF
Dissolved	Prep	3005A			518336	02/20/20 07:58	EMB	TAL BUF
Dissolved	Analysis	6010C		1	518503	02/20/20 14:14	EMB	TAL BUF
Total/NA	Prep	3005A			517354	02/13/20 08:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	517632	02/13/20 16:29	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			518101	02/18/20 14:25	NSW	TAL BUF
Dissolved	Prep	3020A			518301	02/20/20 07:45	NSW	TAL BUF
Dissolved	Analysis	6020A		1	518460	02/20/20 15:06	KMP	TAL BUF
Total/NA	Prep	3020A			517559	02/14/20 08:12	EMB	TAL BUF
Total/NA	Analysis	6020A		1	518033	02/17/20 16:31	KMP	TAL BUF
Total/NA	Prep	3020A			517559	02/14/20 08:12	EMB	TAL BUF
Total/NA	Analysis	6020A		1	518450	02/20/20 14:42	KMP	TAL BUF
Total/NA	Prep	7470A			517439	02/13/20 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	517536	02/13/20 15:24	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		2	517348	02/13/20 00:22	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	517693	02/14/20 15:31	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	517346	02/12/20 23:33	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	517951	02/17/20 14:17	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	517703	02/14/20 14:32	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			460327	02/14/20 07:38	RBR	TAL SL
Total/NA	Analysis	903.0		1	463512	03/09/20 09:51	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			460328	02/14/20 07:52	RBR	TAL SL
Total/NA	Analysis	904.0		1	463127	03/04/20 18:05	KLS	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	1524384	12-31-20

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

Analysis Method	Prep Method	Matrix	Analyte
D516-90, 02		Water	Sulfate
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

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

Method Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
D516-90, 02	Sulfate	ASTM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 Cl- E	Chloride, Total	SM	TAL BUF
SM 4500 F C	Fluoride	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF
7470A	Preparation, Mercury	SW846	TAL BUF
FILTRATION	Sample Filtration	None	TAL BUF

Protocol References:

ASTM = ASTM International

None = None

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:

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

Sample Summary

Client: Waste Connections, Inc.
Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-166194-1	D-7	Water	02/10/20 14:50	02/11/20 10:00	

Quantitation Limit Exceptions Summary

Client: Waste Connections, Inc. Job ID: 480-166194-1
Project/Site: SKB Rosemount - CCR Groundwater III/IV

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

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
D516-90, 02	Sulfate	Water	Total/NA	mg/L	2.0	5.0
SM 4500 Cl- E	Chloride	Water	Total/NA	mg/L	0.50	1.0
SM 4500 F C	Fluoride	Water	Total/NA	mg/L	0.050	0.1

Environmental Analysis Request/Chain of Custody

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Acct. # ______ Group # ______ Sample # ______

Client: Waste Connections, Inc.	
Project Name/#: CCR Sampling	Site ID #:
Project Manager: Nate Beinemann	P.O. #: 3063-20-00151
Sampler: N. Schlagel	PWSID #:
Phone #: 651-792-6065	Quote #:
State where samples were collected: MN	For Compliance: Yes ☐ No ☐

Matrix: Tissue ☐ Ground ☒ Surface ☐ Sediment ☐ Potable ☐ NPDES ☐ Soil ☐ Water Other:

Analyses Requested / Preservation and Filtration Codes

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	6010D, 6020B, 7470A	0516, SM4500_CL-E, SM4500_H+	4500_F_C-Fluoride	2540C-Calcd-TDS	904.0-Rad 228	903.0-Rad 226	Remarks
D-7	2/10/20	14:50	X			X		6	X	X	X	X	X	X	HOLD

Remarks:
★ All Appendix III Metals (Total)
Only Appendix III Metals (Total)
Arsenic, Barium, Chromium, Cobalt, Lead, Molybdenum, Radium 226&228, Thallium

Turnaround Time Requested (TAT) (please check): Standard ☒ Rush ☐
(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed:

Rush results requested by (please check): E-Mail ☐ Phone ☐

E-mail Address:

Phone:

Relinquished by	Date	Time	Received by	Date	Time
[signature]	2/10/20	1110	[signature]	2-10-20	1110
[signature]	2-13-20	1700	[signature]	2/11/20	1840

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☐ MA MCP ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type VI (Raw Data Only) ☐ TX TRRP-13 ☐
NJ DKQP ☐ NYSDEC Category ☐ A or ☐ B

EDD Required? Yes ☒ No ☐ If yes, format: EQEDD

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt 2.4 #1 ICE °C

480-166194 Chain of Custody

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

7045 0717

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-166194-1

Login Number: 166194
List Number: 1
Creator: Kolb, Chris M

List Source: Eurofins TestAmerica, Buffalo

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 480-176967-1
Client Project/Site: SKB Rosemount - CCR Groundwater
Sampling Event: CCR Groundwater

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

Attn: Nathaniel Beinemann

Authorized for release by:
1/4/2021 11:58:53 AM
Joshua Velez, Project Management Assistant I
joshua.velez@eurofinset.com

Designee for

Ryan VanDette, Project Manager II
(716)504-9830
Ryan.VanDette@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

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

Job ID: 480-176967-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-176967-1

Comments
No additional comments.

Receipt
The samples were received on 10/22/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 2.4º C, 2.6º C, 3.3º C, 3.8º C, 3.9º C and 4.2º C.

Metals
Method 3020A: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: DUP-2 (480-176967-18). The reporting limits (RLs) have been adjusted proportionately.

Methods 6010C, 6010D: The interference check standard solution (ICSA) associated with the following samples showed results for Barium at a level greater than 2 times the limit of detection (LOD). It is believed that the solution contains trace impurities of this element / these elements and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. D-1D (480-176967-1), D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), (LCS 480-555583/2-A), (MB 480-555583/1-A), (480-176967-D-1-B MS), (480-176967-D-1-C MSD), (480-176967-D-1-A PDS) and (480-176967-D-1-A SD ^5)

Methods 6010C, 6010D: The interference check standard solution (ICSA) associated with the following samples showed results for Barium at a level greater than 2 times the limit of detection (LOD). It is believed that the solution contains trace impurities of this element / these elements and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20), D-7 (480-176967-21), (LCS 480-555581/2-A), (MB 480-555581/1-A), (480-176967-D-18-B MS), (480-176967-D-18-C MSD), (480-176967-D-18-A PDS) and (480-176967-D-18-A SD ^5)

Method 6020B: The Low Level Initial Calibration Verification, (ICVL 480-555880/7) associated with batch 480-555880, contained Total Antimony above the upper quality control limit. The associated samples were either ND for the affected analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples D-1D (480-176967-1), D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), (LCS 480-555588/2-A), (MB 480-555588/1-A), (480-176967-D-5-C MS), (480-176967-D-5-D MSD), (480-176967-D-5-B PDS) and (480-176967-D-5-B SD ^5) was not performed.

Method 6020B: The Low Level Continuing Calibration Verification, (CCVL 480-555880/53) associated with batch 480-555880, contained Total Antimony above the upper quality control limit. The associated samples were either ND for the affected analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples U-5D (480-176967-15) and U-5S (480-176967-16) was not performed.

Method 6020B: The interference check standard solution (ICSA) associated with batch 480-555880 had results for one or more elements at a level greater than 2 times the limit of detection (LOD). The initial ICSA result(s) was >2X LOD for Total Cobalt, and the closing ICSA result(s) was >2X LOD for Total Cobalt. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

Method 6020B: The interference check standard solution (ICSA) associated with batch 480-556911 had results for one or more elements at a level greater than 2 times the limit of detection (LOD). The initial ICSA result(s) was >2X LOD for Total Cobalt, and the closing ICSA result(s) was >2X LOD for Total Cobalt. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

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

General Chemistry

Job ID: 480-176967-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Methods 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: D-1D (480-176967-1), D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20) and D-7 (480-176967-21).

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

Narrative

Job Narrative
480-176967-2

Comments
No additional comments.

Receipt
The samples were received on 10/22/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 2.4º C, 2.6º C, 3.3º C, 3.8º C, 3.9º C and 5.2º C.

RAD
Method 903.0: 903 Prep batch 160-487318 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. D-1D (480-176967-1), (LCS 160-487318/1-A), (LCSD 160-487318/2-A) and (MB 160-487318/23-A)

Method 903.0: Radium-226 prep batch 160-487348: The following sample(s) exhibited a negative result greater in magnitude than the 3 sigma TPU. This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required. EQUIPMENT BLANK (480-176967-20)

Method 903.0: Radium-226 prep batch 160-487348: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20), D-7 (480-176967-21), (LCS 160-487348/1-A), (LCSD 160-487348/2-A) and (MB 160-487348/23-A)

Method 903.0: Radium-226 prep batch 160-487348: The laboratory control sample (LCS) associated with the following samples, recovery (46%) was outside of the QC lower limit, causing the duplicate precision (RER; 1.97) to also be outside criteria (1.0). All samples have activity below the MDC and RL, and all other QC is within criteria (MB, LCSD, carrier recoveries). Per client request the data have been reported with this narrative. D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20), D-7 (480-176967-21), (LCS 160-487348/1-A), (LCSD 160-487348/2-A) and (MB 160-487348/23-A)

Method 904.0: 904 Prep batch 160-487322 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. D-1D (480-176967-1)

Method 904.0: 904 Prep Batch 160-487353 The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.2) for Ra228. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (38%). The data have been reported with this narrative. (LCS 160-487353/1-A) and (LCSD 160-487353/2-A)

Method 904.0: 904 Prep batch: 160-487353 The LCS was outside the established statistical limits of 60-140% for Ra228. However the

Job ID: 480-176967-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

LCSD was within control limits and the RPD between the LCS/LCSD passed. Method accuracy and precision are demonstrated by the LCSD. The client was informed of the discrepancy and requested the data be reported. (LCS 160-487353/1-A) and (LCSD 160-487353/2-A)

Method 904.0: 904 Prep Batch 160-487353 The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences (see prep NCM 160-206902). The data have been reported with this narrative. D-7 (480-176967-21)

Method 904.0: 904 prep batch 160-487353 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20) and D-7 (480-176967-21)

Method PrecSep_0: Radium 228 Prep Batch 160-487322: Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1D (480-176967-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep_0: Radium 228 Prep Batch 160-487353: Sample 480-176967-4 was prepared at a reduced aliquot due to brown discoloration: Sample 480-176967-21 was prepared at a reduced aliquot due to brown discoloration and a cloudy appearance:

Method PrecSep_0: Radium 228 Prep Batch 160-487353: Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20) and D-7 (480-176967-21). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-487318: Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1D (480-176967-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-487348: Insufficient sample volume was available to perform a sample duplicate for the following samples: D-1S (480-176967-2), D-2D (480-176967-3), D-2S (480-176967-4), D-3D (480-176967-5), D-3S (480-176967-6), D-4D (480-176967-7), D-4S (480-176967-8), D-5D (480-176967-9), D-5S2 (480-176967-10), D-8 (480-176967-11), D-9 (480-176967-12), U-4D (480-176967-13), U-4S (480-176967-14), U-5D (480-176967-15), U-5S (480-176967-16), DUP-1 (480-176967-17), DUP-2 (480-176967-18), FIELD BLANK 1 (480-176967-19), EQUIPMENT BLANK (480-176967-20) and D-7 (480-176967-21). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-487348: Sample 480-176967-4 was prepared at a reduced aliquot due to brown discoloration: Sample 480-176967-21 was prepared at a reduced aliquot due to brown discoloration and a cloudy appearance:

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

Detection Summary

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

Job ID: 480-176967-1

Client Sample ID: D-1D — Lab Sample ID: 480-176967-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.050	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	91.2		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0067		0.0040		mg/L	1		6010D	Total/NA
Sulfate	40.3		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	273		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	29.0		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.070		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.7	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-1S — Lab Sample ID: 480-176967-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.055	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.035		0.020		mg/L	1		6010D	Total/NA
Calcium	102		0.50		mg/L	1		6010D	Total/NA
Sulfate	22.4		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	527		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	43.4		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-2D — Lab Sample ID: 480-176967-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.055	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	95.4		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0044		0.0040		mg/L	1		6010D	Total/NA
Sulfate	35.8		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	354		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	33.0		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-2S — Lab Sample ID: 480-176967-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.050	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.027		0.020		mg/L	1		6010D	Total/NA
Calcium	106		0.50		mg/L	1		6010D	Total/NA
Sulfate	28.9		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	383		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	37.8		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-3D — Lab Sample ID: 480-176967-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.065	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.060		0.020		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Client Sample ID: D-3D (Continued)
Lab Sample ID: 480-176967-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	115		0.50		mg/L	1		6010D	Total/NA
Chromium	0.0063		0.0040		mg/L	1		6010D	Total/NA
Cobalt	0.54	^	0.30		ug/L	1		6020B	Total/NA
Sulfate	49.4		10.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	547		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	82.8		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.070		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-3S
Lab Sample ID: 480-176967-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.088	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.33		0.020		mg/L	1		6010D	Total/NA
Calcium	166		0.50		mg/L	1		6010D	Total/NA
Chromium	0.020		0.0040		mg/L	1		6010D	Total/NA
Cobalt	0.30	^	0.30		ug/L	1		6020B	Total/NA
Sulfate	41.6		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	444		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	241	B	1.5		mg/L	3		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-4D
Lab Sample ID: 480-176967-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.068	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	101		0.50		mg/L	1		6010D	Total/NA
Sulfate	37.0		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	383		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	46.2		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-4S
Lab Sample ID: 480-176967-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.077	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	105		0.50		mg/L	1		6010D	Total/NA
Sulfate	37.4		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	377		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	45.6	B	1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	15.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-5D
Lab Sample ID: 480-176967-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.059	^	0.0020		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: D-5D (Continued)
Lab Sample ID: 480-176967-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	108		0.50		mg/L	1		6010D	Total/NA
Sulfate	48.3		10.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	382		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	40.6		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.080		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-5S2
Lab Sample ID: 480-176967-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.063	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.092		0.020		mg/L	1		6010D	Total/NA
Calcium	102		0.50		mg/L	1		6010D	Total/NA
Chromium	0.011		0.0040		mg/L	1		6010D	Total/NA
Sulfate	58.9		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	597		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	79.6		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.060		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.8	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-8
Lab Sample ID: 480-176967-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.082	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	108		0.50		mg/L	1		6010D	Total/NA
Sulfate	52.0		10.0		mg/L	5		D516-90, 02	Total/NA
Total Dissolved Solids	499		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	37.0	B	0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.11		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.1	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-9
Lab Sample ID: 480-176967-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.071	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.023		0.020		mg/L	1		6010D	Total/NA
Calcium	108		0.50		mg/L	1		6010D	Total/NA
Cobalt	0.34	^	0.30		ug/L	1		6020B	Total/NA
Sulfate	38.4		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	466		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	30.8		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.3	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-4D
Lab Sample ID: 480-176967-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.043	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	91.2		0.50		mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: U-4D (Continued) — Lab Sample ID: 480-176967-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	39.5		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	420		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	32.4	B	0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.11		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.2	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-4S — Lab Sample ID: 480-176967-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.038	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	90.8		0.50		mg/L	1		6010D	Total/NA
Chromium	0.011		0.0040		mg/L	1		6010D	Total/NA
Sulfate	15.1		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	326		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	47.8		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.7	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-5D — Lab Sample ID: 480-176967-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.060	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	90.3		0.50		mg/L	1		6010D	Total/NA
Sulfate	40.6		4.0		mg/L	2		D516-90, 02	Total/NA
Total Dissolved Solids	406		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	27.7		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: U-5S — Lab Sample ID: 480-176967-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.069	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.055		0.020		mg/L	1		6010D	Total/NA
Calcium	94.0		0.50		mg/L	1		6010D	Total/NA
Sulfate	37.3		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	331		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	31.0		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.5	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 480-176967-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.043	^	0.0020		mg/L	1		6010D	Total/NA
Calcium	90.6		0.50		mg/L	1		6010D	Total/NA
Sulfate	39.5		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	520		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	32.4		0.50		mg/L	1		SM 4500 Cl- E	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 480-176967-1

Client Sample ID: DUP-1 (Continued) — Lab Sample ID: 480-176967-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.10		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.2	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	18.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: DUP-2 — Lab Sample ID: 480-176967-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.072	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.025		0.020		mg/L	1		6010D	Total/NA
Calcium	108		0.50		mg/L	1		6010D	Total/NA
Cobalt	0.37	^	0.30		ug/L	1		6020B	Total/NA
Sulfate	38.8		2.0		mg/L	1		D516-90, 02	Total/NA
Total Dissolved Solids	584		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	30.6		0.50		mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.090		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.3	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.9	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: FIELD BLANK 1 — Lab Sample ID: 480-176967-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.1		2.0		mg/L	1		D516-90, 02	Total/NA
pH	6.8	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.4	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: EQUIPMENT BLANK — Lab Sample ID: 480-176967-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.0		2.0		mg/L	1		D516-90, 02	Total/NA
pH	6.4	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	17.0	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

Client Sample ID: D-7 — Lab Sample ID: 480-176967-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.43	^	0.0020		mg/L	1		6010D	Total/NA
Boron	0.10		0.020		mg/L	1		6010D	Total/NA
Calcium	178		0.50		mg/L	1		6010D	Total/NA
Chromium	0.20		0.0040		mg/L	1		6010D	Total/NA
Lead	0.053		0.010		mg/L	1		6010D	Total/NA
Arsenic	24.4		1.0		ug/L	1		6020B	Total/NA
Beryllium	1.5		0.70		ug/L	1		6020B	Total/NA
Cadmium	1.0		0.50		ug/L	1		6020B	Total/NA
Cobalt	55.7	^	0.30		ug/L	1		6020B	Total/NA
Molybdenum	2.7		1.0		ug/L	1		6020B	Total/NA
Thallium	2.9		0.20		ug/L	1		6020B	Total/NA
Mercury	0.25		0.20		ug/L	1		7470A	Total/NA
Sulfate	81.1		6.0		mg/L	3		D516-90, 02	Total/NA
Total Dissolved Solids	562		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	66.6		1.0		mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.050		0.050		mg/L	1		SM 4500 F C	Total/NA
pH	7.0	HF	0.1		SU	1		SM 4500 H+ B	Total/NA
Temperature	16.6	HF	0.001		Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: D-1D
Date Collected: 10/20/20 08:40
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-1
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.050**	^	0.0020		mg/L		10/26/20 10:17	10/26/20 23:34	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/26/20 23:34	1
Calcium	**91.2**		0.50		mg/L		10/26/20 10:17	10/26/20 23:34	1
Chromium	**0.0067**		0.0040		mg/L		10/26/20 10:17	10/26/20 23:34	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/26/20 23:34	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/26/20 23:34	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:36	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:36	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:36	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:36	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:36	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:36	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:36	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:36	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**40.3**		4.0		mg/L			10/28/20 03:42	2
Total Dissolved Solids	**273**		10.0		mg/L			10/26/20 23:07	1
Chloride	**29.0**		0.50		mg/L			10/28/20 02:01	1
Fluoride	**0.070**		0.050		mg/L			10/26/20 13:21	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**	**HF**	0.1		SU			10/25/20 11:50	1
Temperature	**16.0**	**HF**	0.001		Degrees C			10/25/20 11:50	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.148	U	0.185	0.185	1.00	0.305	pCi/L	10/30/20 09:53	12/22/20 07:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.0*		*40 - 110*	*10/30/20 09:53*	*12/22/20 07:21*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.543**		0.338	0.342	1.00	0.519	pCi/L	10/30/20 10:37	12/21/20 12:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.0*		*40 - 110*	*10/30/20 10:37*	*12/21/20 12:15*	*1*
Y Carrier	*85.6*		*40 - 110*	*10/30/20 10:37*	*12/21/20 12:15*	*1*

Client Sample ID: D-1S

Date Collected: 10/20/20 08:20
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-2

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.055**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:04	1
Boron	**0.035**		0.020		mg/L		10/26/20 10:17	10/27/20 00:04	1
Calcium	**102**		0.50		mg/L		10/26/20 10:17	10/27/20 00:04	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:04	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:04	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:04	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:38	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:38	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:38	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:38	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:38	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:38	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:38	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:38	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**22.4**		2.0		mg/L			10/28/20 03:31	1
Total Dissolved Solids	**527**		10.0		mg/L			10/24/20 19:19	1
Chloride	**43.4**		0.50		mg/L			10/28/20 02:02	1
Fluoride	**0.050**		0.050		mg/L			10/26/20 13:24	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			10/25/20 11:53	1
Temperature	**15.5**	**HF**	0.001		Degrees C			10/25/20 11:53	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0843	U *	0.159	0.159	1.00	0.285	pCi/L	10/30/20 14:13	12/23/20 07:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.7*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0647	U *	0.321	0.322	1.00	0.580	pCi/L	10/30/20 14:38	12/22/20 13:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*
Y Carrier	*79.6*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*

Client Sample ID: D-2D

Date Collected: 10/20/20 09:50
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-3

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.055**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:08	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:08	1
Calcium	**95.4**		0.50		mg/L		10/26/20 10:17	10/27/20 00:08	1
Chromium	**0.0044**		0.0040		mg/L		10/26/20 10:17	10/27/20 00:08	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:08	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:08	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:40	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:40	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:40	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:40	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:40	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:40	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:40	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**35.8**		2.0		mg/L			10/28/20 03:31	1
Total Dissolved Solids	**354**		10.0		mg/L			10/26/20 23:07	1
Chloride	**33.0**		0.50		mg/L			10/28/20 02:02	1
Fluoride	**0.090**		0.050		mg/L			10/26/20 13:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			10/25/20 11:55	1
Temperature	**15.7**	**HF**	0.001		Degrees C			10/25/20 11:55	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.103	U *	0.153	0.154	1.00	0.372	pCi/L	10/30/20 14:13	12/23/20 07:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*63.6*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.884**	*	0.428	0.435	1.00	0.629	pCi/L	10/30/20 14:38	12/22/20 13:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*63.6*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*
Y Carrier	*80.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*

Client Sample ID: D-2S
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-4
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.050**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:12	1
Boron	**0.027**		0.020		mg/L		10/26/20 10:17	10/27/20 00:12	1
Calcium	**106**		0.50		mg/L		10/26/20 10:17	10/27/20 00:12	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:12	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:12	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:12	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:43	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:43	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:43	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:43	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:43	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:43	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:43	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**28.9**		2.0		mg/L			10/28/20 03:32	1
Total Dissolved Solids	**383**		10.0		mg/L			10/24/20 19:19	1
Chloride	**37.8**		0.50		mg/L			10/28/20 02:02	1
Fluoride	ND		0.050		mg/L			10/26/20 13:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			10/25/20 11:58	1
Temperature	**15.9**	**HF**	0.001		Degrees C			10/25/20 11:58	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.236	U *	0.237	0.238	1.00	0.368	pCi/L	10/30/20 14:13	12/23/20 07:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.2*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:47*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.294	U *	0.445	0.446	1.00	0.747	pCi/L	10/30/20 14:38	12/22/20 13:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.2*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*
Y Carrier	*78.1*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:20*	*1*

Client Sample ID: D-3D

Date Collected: 10/20/20 11:10
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-5

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.065**	^	0.0020		mg/L		10/26/20 10:17	10/27/20 00:15	1
Boron	**0.060**		0.020		mg/L		10/26/20 10:17	10/27/20 00:15	1
Calcium	**115**		0.50		mg/L		10/26/20 10:17	10/27/20 00:15	1
Chromium	**0.0063**		0.0040		mg/L		10/26/20 10:17	10/27/20 00:15	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:15	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:15	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:45	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:45	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:45	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:45	1
Cobalt	**0.54**	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:45	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:45	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:45	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:45	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**49.4**		10.0		mg/L			10/28/20 03:38	5
Total Dissolved Solids	**547**		10.0		mg/L			10/24/20 19:19	1
Chloride	**82.8**		1.0		mg/L			10/28/20 02:56	2
Fluoride	**0.070**		0.050		mg/L			10/26/20 13:39	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:00	1
Temperature	**16.8**	**HF**	0.001		Degrees C			10/25/20 12:00	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0217	U *	0.149	0.149	1.00	0.294	pCi/L	10/30/20 14:13	12/23/20 07:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.1*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:48*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.358	U *	0.304	0.306	1.00	0.486	pCi/L	10/30/20 14:38	12/22/20 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.1*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*
Y Carrier	*78.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*

Client Sample ID: D-3S
Date Collected: 10/20/20 10:50
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-6
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.088**	^	0.0020		mg/L		10/26/20 10:17	10/27/20 00:19	1
Boron	**0.33**		0.020		mg/L		10/26/20 10:17	10/27/20 00:19	1
Calcium	**166**		0.50		mg/L		10/26/20 10:17	10/27/20 00:19	1
Chromium	**0.020**		0.0040		mg/L		10/26/20 10:17	10/27/20 00:19	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:19	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:19	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:03	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:03	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:03	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:03	1
Cobalt	**0.30**	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:03	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:03	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:03	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**41.6**		4.0		mg/L			10/28/20 03:43	2
Total Dissolved Solids	**444**		10.0		mg/L			10/24/20 19:19	1
Chloride	**241**	**B**	1.5		mg/L			10/28/20 02:09	3
Fluoride	**0.050**		0.050		mg/L			10/26/20 13:42	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			10/25/20 12:03	1
Temperature	**17.2**	**HF**	0.001		Degrees C			10/25/20 12:03	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.170	U *	0.207	0.208	1.00	0.342	pCi/L	10/30/20 14:13	12/23/20 07:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.5*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:48*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.298	U *	0.326	0.327	1.00	0.534	pCi/L	10/30/20 14:38	12/22/20 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.5*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*
Y Carrier	*77.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*

Client Sample ID: D-4D

Date Collected: 10/20/20 14:00
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-7

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.068**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:23	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:23	1
Calcium	**101**		0.50		mg/L		10/26/20 10:17	10/27/20 00:23	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:23	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:23	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:23	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:05	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:05	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:05	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:05	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:05	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:05	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:05	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:05	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**37.0**		2.0		mg/L			10/28/20 03:33	1
Total Dissolved Solids	**383**		10.0		mg/L			10/24/20 19:19	1
Chloride	**46.2**		1.0		mg/L			10/28/20 02:13	2
Fluoride	**0.090**		0.050		mg/L			10/26/20 13:45	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			10/25/20 12:08	1
Temperature	**16.2**	**HF**	0.001		Degrees C			10/25/20 12:08	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0614	U *	0.127	0.127	1.00	0.297	pCi/L	10/30/20 14:13	12/23/20 07:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.3*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:48*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0932	U *	0.324	0.324	1.00	0.562	pCi/L	10/30/20 14:38	12/22/20 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.3*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*
Y Carrier	*78.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:21*	*1*

Client Sample ID: D-4S

Date Collected: 10/20/20 13:45
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-8

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.077**	^	0.0020		mg/L		10/26/20 10:17	10/27/20 00:27	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:27	1
Calcium	**105**		0.50		mg/L		10/26/20 10:17	10/27/20 00:27	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:27	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:27	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:27	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:08	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:08	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:08	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:08	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:08	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:08	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:08	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:08	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**37.4**		2.0		mg/L			10/28/20 03:33	1
Total Dissolved Solids	**377**		10.0		mg/L			10/24/20 19:19	1
Chloride	**45.6**	**B**	1.0		mg/L			10/28/20 02:09	2
Fluoride	**0.080**		0.050		mg/L			10/26/20 13:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:10	1
Temperature	**15.8**	**HF**	0.001		Degrees C			10/25/20 12:10	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0730	U *	0.115	0.115	1.00	0.289	pCi/L	10/30/20 14:13	12/23/20 07:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.4*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:48*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.237	U *	0.346	0.346	1.00	0.578	pCi/L	10/30/20 14:38	12/22/20 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.4*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*
Y Carrier	*76.6*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*

Client Sample ID: D-5D
Date Collected: 10/20/20 12:30
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-9
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.059**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:31	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:31	1
Calcium	**108**		0.50		mg/L		10/26/20 10:17	10/27/20 00:31	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:31	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:31	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:31	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:10	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:10	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:10	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:10	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:10	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:10	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:10	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:10	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**48.3**		10.0		mg/L			10/28/20 03:40	5
Total Dissolved Solids	**382**		10.0		mg/L			10/24/20 19:19	1
Chloride	**40.6**		0.50		mg/L			10/28/20 02:05	1
Fluoride	**0.080**		0.050		mg/L			10/26/20 13:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:13	1
Temperature	**16.2**	**HF**	0.001		Degrees C			10/25/20 12:13	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.248	U *	0.217	0.218	1.00	0.334	pCi/L	10/30/20 14:13	12/23/20 07:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.9*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:48*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.146	U *	0.277	0.277	1.00	0.471	pCi/L	10/30/20 14:38	12/22/20 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*
Y Carrier	*80.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*

Client Sample ID: D-5S2
Date Collected: 10/20/20 12:05
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-10
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.063**	^	0.0020		mg/L		10/26/20 10:17	10/27/20 00:46	1
Boron	**0.092**		0.020		mg/L		10/26/20 10:17	10/27/20 00:46	1
Calcium	**102**		0.50		mg/L		10/26/20 10:17	10/27/20 00:46	1
Chromium	**0.011**		0.0040		mg/L		10/26/20 10:17	10/27/20 00:46	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:46	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:46	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:12	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:12	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:12	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:12	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:12	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:12	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:12	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:12	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**58.9**		4.0		mg/L			10/28/20 03:35	2
Total Dissolved Solids	**597**		10.0		mg/L			10/24/20 19:19	1
Chloride	**79.6**		1.0		mg/L			10/28/20 02:56	2
Fluoride	**0.060**		0.050		mg/L			10/26/20 13:52	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:15	1
Temperature	**16.8**	**HF**	0.001		Degrees C			10/25/20 12:15	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0994	U *	0.120	0.121	1.00	0.345	pCi/L	10/30/20 14:13	12/23/20 07:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*66.3*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:49*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.629**	*	0.366	0.370	1.00	0.551	pCi/L	10/30/20 14:38	12/22/20 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*66.3*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*
Y Carrier	*81.1*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:22*	*1*

Client Sample ID: D-8
Date Collected: 10/20/20 10:15
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-11
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.082**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:49	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:49	1
Calcium	**108**		0.50		mg/L		10/26/20 10:17	10/27/20 00:49	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:49	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:49	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:49	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:14	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:14	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:14	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:14	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:14	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:14	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:14	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**52.0**		10.0		mg/L			10/28/20 03:44	5
Total Dissolved Solids	**499**		10.0		mg/L			10/24/20 19:19	1
Chloride	**37.0**	**B**	0.50		mg/L			10/28/20 02:08	1
Fluoride	**0.11**		0.050		mg/L			10/26/20 13:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			10/25/20 12:18	1
Temperature	**18.1**	**HF**	0.001		Degrees C			10/25/20 12:18	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0639	U *	0.120	0.120	1.00	0.285	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.3*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.263	U *	0.287	0.288	1.00	0.470	pCi/L	10/30/20 14:38	12/22/20 13:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.3*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*
Y Carrier	*80.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*

Client Sample ID: D-9

Date Collected: 10/21/20 11:25
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-12

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.071**	^	0.0020		mg/L		10/26/20 10:17	10/27/20 00:53	1
Boron	**0.023**		0.020		mg/L		10/26/20 10:17	10/27/20 00:53	1
Calcium	**108**		0.50		mg/L		10/26/20 10:17	10/27/20 00:53	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:53	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:53	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:53	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:17	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:17	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:17	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:17	1
Cobalt	**0.34**	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:17	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:17	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:17	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:17	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**38.4**		2.0		mg/L			10/28/20 03:35	1
Total Dissolved Solids	**466**		10.0		mg/L			10/24/20 19:20	1
Chloride	**30.8**		0.50		mg/L			10/28/20 02:06	1
Fluoride	**0.090**		0.050		mg/L			10/26/20 13:57	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			10/25/20 12:20	1
Temperature	**18.3**	**HF**	0.001		Degrees C			10/25/20 12:20	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0260	U *	0.120	0.120	1.00	0.271	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.251	U *	0.329	0.330	1.00	0.547	pCi/L	10/30/20 14:38	12/22/20 13:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*
Y Carrier	*76.3*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*

Client Sample ID: U-4D
Date Collected: 10/19/20 12:15
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-13
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.043**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 00:57	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 00:57	1
Calcium	**91.2**		0.50		mg/L		10/26/20 10:17	10/27/20 00:57	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 00:57	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 00:57	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 00:57	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:19	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:19	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:19	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:19	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:19	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:19	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:19	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.5**		2.0		mg/L			10/28/20 03:38	1
Total Dissolved Solids	**420**		10.0		mg/L			10/24/20 19:20	1
Chloride	**32.4**	**B**	0.50		mg/L			10/28/20 02:09	1
Fluoride	**0.11**		0.050		mg/L			10/26/20 13:11	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			10/25/20 12:23	1
Temperature	**17.2**	**HF**	0.001		Degrees C			10/25/20 12:23	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0526	U *	0.158	0.158	1.00	0.301	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.4*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00345	U *	0.330	0.330	1.00	0.593	pCi/L	10/30/20 14:38	12/22/20 13:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.4*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*
Y Carrier	*80.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:23*	*1*

Client Sample ID: U-4S
Lab Sample ID: 480-176967-14

Date Collected: 10/19/20 11:20
Matrix: Water
Date Received: 10/22/20 10:00

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.038**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 01:01	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 01:01	1
Calcium	**90.8**		0.50		mg/L		10/26/20 10:17	10/27/20 01:01	1
Chromium	**0.011**		0.0040		mg/L		10/26/20 10:17	10/27/20 01:01	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 01:01	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 01:01	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:21	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:21	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:21	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:21	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:21	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:21	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:21	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 17:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15.1**		2.0		mg/L			10/28/20 03:39	1
Total Dissolved Solids	**326**		10.0		mg/L			10/24/20 19:20	1
Chloride	**47.8**		1.0		mg/L			10/28/20 02:14	2
Fluoride	**0.090**		0.050		mg/L			10/26/20 14:25	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:25	1
Temperature	**16.7**	**HF**	0.001		Degrees C			10/25/20 12:25	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.186	U *	0.179	0.180	1.00	0.276	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.364	U *	0.293	0.295	1.00	0.463	pCi/L	10/30/20 14:38	12/22/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*
Y Carrier	*84.1*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*

Client Sample ID: U-5D
Lab Sample ID: 480-176967-15

Date Collected: 10/19/20 14:15
Matrix: Water
Date Received: 10/22/20 10:00

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.060**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 01:05	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/27/20 01:05	1
Calcium	**90.3**		0.50		mg/L		10/26/20 10:17	10/27/20 01:05	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 01:05	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 01:05	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 01:05	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:31	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:31	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:31	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:31	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:31	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:31	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:31	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 17:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**40.6**		4.0		mg/L			10/28/20 03:48	2
Total Dissolved Solids	**406**		10.0		mg/L			10/24/20 19:20	1
Chloride	**27.7**		0.50		mg/L			10/28/20 02:30	1
Fluoride	**0.10**		0.050		mg/L			10/26/20 14:28	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1		SU			10/25/20 12:28	1
Temperature	**16.4**	**HF**	0.001		Degrees C			10/25/20 12:28	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.122	U *	0.162	0.162	1.00	0.270	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.9*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.194	U *	0.322	0.323	1.00	0.543	pCi/L	10/30/20 14:38	12/22/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*
Y Carrier	*84.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*

Client Sample ID: U-5S
Date Collected: 10/19/20 13:50
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-16
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.069**	**^**	0.0020		mg/L		10/26/20 10:17	10/27/20 01:08	1
Boron	**0.055**		0.020		mg/L		10/26/20 10:17	10/27/20 01:08	1
Calcium	**94.0**		0.50		mg/L		10/26/20 10:17	10/27/20 01:08	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/27/20 01:08	1
Lead	ND		0.010		mg/L		10/26/20 10:17	10/27/20 01:08	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/27/20 01:08	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 19:33	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:33	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 19:33	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 19:33	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 19:33	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:33	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 19:33	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 19:33	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**37.3**		2.0		mg/L			10/28/20 03:40	1
Total Dissolved Solids	**331**		10.0		mg/L			10/24/20 19:20	1
Chloride	**31.0**		0.50		mg/L			10/28/20 02:14	1
Fluoride	**0.10**		0.050		mg/L			10/26/20 14:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:30	1
Temperature	**16.5**	**HF**	0.001		Degrees C			10/25/20 12:30	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0775	U *	0.162	0.162	1.00	0.295	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.2*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0987	U *	0.290	0.290	1.00	0.502	pCi/L	10/30/20 14:38	12/22/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.2*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*
Y Carrier	*86.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*

Client Sample ID: DUP-1
Date Collected: 10/19/20 00:00
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-17
Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.043**	^	0.0020		mg/L		10/27/20 09:05	10/28/20 14:42	1
Boron	ND		0.020		mg/L		10/27/20 09:05	10/28/20 14:42	1
Calcium	**90.6**		0.50		mg/L		10/27/20 09:05	10/28/20 14:42	1
Chromium	ND		0.0040		mg/L		10/27/20 09:05	10/28/20 14:42	1
Lead	ND		0.010		mg/L		10/27/20 09:05	10/28/20 14:42	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 14:42	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		10/27/20 08:40	11/04/20 18:13	1
Arsenic	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:46	1
Beryllium	ND		0.70		ug/L		10/27/20 08:40	10/30/20 18:46	1
Cadmium	ND		0.50		ug/L		10/27/20 08:40	10/30/20 18:46	1
Cobalt	ND	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:46	1
Molybdenum	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:46	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:46	1
Thallium	ND		0.20		ug/L		10/27/20 08:40	10/30/20 18:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 18:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.5**		2.0		mg/L			10/28/20 03:40	1
Total Dissolved Solids	**520**		10.0		mg/L			10/24/20 19:20	1
Chloride	**32.4**		0.50		mg/L			10/28/20 02:14	1
Fluoride	**0.10**		0.050		mg/L			10/26/20 14:33	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**	**HF**	0.1		SU			10/25/20 12:35	1
Temperature	**18.0**	**HF**	0.001		Degrees C			10/25/20 12:35	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0153	U *	0.122	0.122	1.00	0.276	pCi/L	10/30/20 14:13	12/23/20 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:50*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.141	U *	0.248	0.249	1.00	0.424	pCi/L	10/30/20 14:38	12/22/20 13:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*
Y Carrier	*85.6*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:24*	*1*

Client Sample ID: DUP-2

Date Collected: 10/21/20 00:00
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-18

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.072**	^	0.0020		mg/L		10/27/20 09:05	10/28/20 14:00	1
Boron	**0.025**		0.020		mg/L		10/27/20 09:05	10/28/20 14:00	1
Calcium	**108**		0.50		mg/L		10/27/20 09:05	10/28/20 14:00	1
Chromium	ND		0.0040		mg/L		10/27/20 09:05	10/28/20 14:00	1
Lead	ND		0.010		mg/L		10/27/20 09:05	10/28/20 14:00	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 14:00	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0		ug/L		11/07/20 10:28	11/10/20 11:23	1
Arsenic	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:20	1
Beryllium	ND		0.70		ug/L		10/27/20 08:40	10/30/20 18:20	1
Cadmium	ND		0.50		ug/L		10/27/20 08:40	10/30/20 18:20	1
Cobalt	**0.37**	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:20	1
Molybdenum	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:20	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:20	1
Thallium	ND		0.20		ug/L		10/27/20 08:40	10/30/20 18:20	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 18:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**38.8**		2.0		mg/L			10/28/20 03:41	1
Total Dissolved Solids	**584**		10.0		mg/L			10/24/20 19:20	1
Chloride	**30.6**		0.50		mg/L			10/28/20 02:31	1
Fluoride	**0.090**		0.050		mg/L			10/26/20 14:43	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**	**HF**	0.1		SU			10/25/20 12:38	1
Temperature	**17.9**	**HF**	0.001		Degrees C			10/25/20 12:38	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0457	U *	0.144	0.144	1.00	0.334	pCi/L	10/30/20 14:13	12/23/20 07:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*63.3*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:51*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.103	U *	0.301	0.301	1.00	0.526	pCi/L	10/30/20 14:38	12/22/20 13:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*63.3*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:25*	*1*
Y Carrier	*80.4*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:25*	*1*

Client Sample ID: FIELD BLANK 1
Lab Sample ID: 480-176967-19

Date Collected: 10/20/20 12:00
Matrix: Water
Date Received: 10/22/20 10:00

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND	^	0.0020		mg/L		10/27/20 09:05	10/28/20 14:19	1
Boron	ND		0.020		mg/L		10/27/20 09:05	10/28/20 14:19	1
Calcium	ND		0.50		mg/L		10/27/20 09:05	10/28/20 14:19	1
Chromium	ND		0.0040		mg/L		10/27/20 09:05	10/28/20 14:19	1
Lead	ND		0.010		mg/L		10/27/20 09:05	10/28/20 14:19	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 14:19	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		10/27/20 08:40	11/04/20 17:50	1
Arsenic	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:23	1
Beryllium	ND		0.70		ug/L		10/27/20 08:40	10/30/20 18:23	1
Cadmium	ND		0.50		ug/L		10/27/20 08:40	10/30/20 18:23	1
Cobalt	ND	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:23	1
Molybdenum	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:23	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:23	1
Thallium	ND		0.20		ug/L		10/27/20 08:40	10/30/20 18:23	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 18:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**2.1**		2.0		mg/L			10/28/20 03:41	1
Total Dissolved Solids	ND		10.0		mg/L			10/24/20 19:20	1
Chloride	ND		0.50		mg/L			10/28/20 02:15	1
Fluoride	ND		0.050		mg/L			10/26/20 14:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.8**	**HF**	0.1		SU			10/25/20 12:41	1
Temperature	**17.4**	**HF**	0.001		Degrees C			10/25/20 12:41	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0469	U *	0.146	0.146	1.00	0.276	pCi/L	10/30/20 14:13	12/23/20 07:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.6*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:51*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.258	U *	0.288	0.289	1.00	0.472	pCi/L	10/30/20 14:38	12/22/20 13:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.6*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:27*	*1*
Y Carrier	*80.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:27*	*1*

Client Sample ID: EQUIPMENT BLANK
Lab Sample ID: 480-176967-20

Date Collected: 10/20/20 12:05
Matrix: Water
Date Received: 10/22/20 10:00

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND	^	0.0020		mg/L		10/27/20 09:05	10/28/20 14:23	1
Boron	ND		0.020		mg/L		10/27/20 09:05	10/28/20 14:23	1
Calcium	ND		0.50		mg/L		10/27/20 09:05	10/28/20 14:23	1
Chromium	ND		0.0040		mg/L		10/27/20 09:05	10/28/20 14:23	1
Lead	ND		0.010		mg/L		10/27/20 09:05	10/28/20 14:23	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 14:23	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		10/27/20 08:40	11/04/20 18:09	1
Arsenic	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:41	1
Beryllium	ND		0.70		ug/L		10/27/20 08:40	10/30/20 18:41	1
Cadmium	ND		0.50		ug/L		10/27/20 08:40	10/30/20 18:41	1
Cobalt	ND	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:41	1
Molybdenum	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:41	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:41	1
Thallium	ND		0.20		ug/L		10/27/20 08:40	10/30/20 18:41	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 18:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**2.0**		2.0		mg/L			10/28/20 03:44	1
Total Dissolved Solids	ND		10.0		mg/L			10/24/20 19:20	1
Chloride	ND		0.50		mg/L			10/28/20 02:15	1
Fluoride	ND		0.050		mg/L			10/26/20 14:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.4**	**HF**	0.1		SU			10/25/20 12:44	1
Temperature	**17.0**	**HF**	0.001		Degrees C			10/25/20 12:44	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.174	U	0.106	0.107	1.00	0.327	pCi/L	10/30/20 14:13	12/23/20 07:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:52*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.265	U *	0.293	0.294	1.00	0.481	pCi/L	10/30/20 14:38	12/22/20 13:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*
Y Carrier	*84.9*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*

Client Sample ID: D-7

Date Collected: 10/21/20 08:20
Date Received: 10/22/20 10:00

Lab Sample ID: 480-176967-21

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.43**	^	0.0020		mg/L		10/27/20 09:05	10/28/20 14:38	1
Boron	**0.10**		0.020		mg/L		10/27/20 09:05	10/28/20 14:38	1
Calcium	**178**		0.50		mg/L		10/27/20 09:05	10/28/20 14:38	1
Chromium	**0.20**		0.0040		mg/L		10/27/20 09:05	10/28/20 14:38	1
Lead	**0.053**		0.010		mg/L		10/27/20 09:05	10/28/20 14:38	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 14:38	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		10/27/20 08:40	11/04/20 18:11	1
Arsenic	**24.4**		1.0		ug/L		10/27/20 08:40	10/30/20 18:44	1
Beryllium	**1.5**		0.70		ug/L		10/27/20 08:40	10/30/20 18:44	1
Cadmium	**1.0**		0.50		ug/L		10/27/20 08:40	10/30/20 18:44	1
Cobalt	**55.7**	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:44	1
Molybdenum	**2.7**		1.0		ug/L		10/27/20 08:40	10/30/20 18:44	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:44	1
Thallium	**2.9**		0.20		ug/L		10/27/20 08:40	10/30/20 18:44	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.25**		0.20		ug/L		10/27/20 13:20	10/27/20 18:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**81.1**		6.0		mg/L			10/28/20 03:52	3
Total Dissolved Solids	**562**		10.0		mg/L			10/24/20 19:19	1
Chloride	**66.6**		1.0		mg/L			10/28/20 02:40	2
Fluoride	**0.050**		0.050		mg/L			10/26/20 14:57	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.0**	**HF**	0.1		SU			10/25/20 12:46	1
Temperature	**16.6**	**HF**	0.001		Degrees C			10/25/20 12:46	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.88**	*	0.696	0.716	1.00	0.705	pCi/L	10/30/20 14:13	12/23/20 07:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*62.8*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:52*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**2.23**	* G	0.864	0.888	1.00	1.21	pCi/L	10/30/20 14:38	12/22/20 13:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*62.8*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*
Y Carrier	*86.7*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*

Tracer/Carrier Summary

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

Job ID: 480-176967-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
480-176967-1	D-1D	73.0
480-176967-2	D-1S	75.7
480-176967-3	D-2D	63.6
480-176967-4	D-2S	74.2
480-176967-5	D-3D	80.1
480-176967-6	D-3S	76.5
480-176967-7	D-4D	78.3
480-176967-8	D-4S	77.4
480-176967-9	D-5D	83.9
480-176967-10	D-5S2	66.3
480-176967-11	D-8	83.3
480-176967-12	D-9	76.0
480-176967-13	U-4D	65.4
480-176967-14	U-4S	76.0
480-176967-15	U-5D	73.9
480-176967-16	U-5S	74.2
480-176967-17	DUP-1	70.7
480-176967-18	DUP-2	63.3
480-176967-19	FIELD BLANK 1	83.6
480-176967-20	EQUIPMENT BLANK	76.0
480-176967-21	D-7	62.8
LCS 160-487348/1-A	Lab Control Sample	75.7
LCSD 160-487318/2-A	Lab Control Sample Dup	80.4
LCSD 160-487348/2-A	Lab Control Sample Dup	85.0
MB 160-487318/23-A	Method Blank	76.5
MB 160-487348/23-A	Method Blank	79.2

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
480-176967-1	D-1D	73.0	85.6
480-176967-2	D-1S	75.7	79.6
480-176967-3	D-2D	63.6	80.0
480-176967-4	D-2S	74.2	78.1
480-176967-5	D-3D	80.1	78.9
480-176967-6	D-3S	76.5	77.0
480-176967-7	D-4D	78.3	78.9
480-176967-8	D-4S	77.4	76.6
480-176967-9	D-5D	83.9	80.0
480-176967-10	D-5S2	66.3	81.1
480-176967-11	D-8	83.3	80.7
480-176967-12	D-9	76.0	76.3
480-176967-13	U-4D	65.4	80.7
480-176967-14	U-4S	76.0	84.1

Tracer/Carrier Summary

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Method: 904.0 - Radium-228 (GFPC) (Continued)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)									
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)								
480-176967-15	U-5D	73.9	84.9								
480-176967-16	U-5S	74.2	86.7								
480-176967-17	DUP-1	70.7	85.6								
480-176967-18	DUP-2	63.3	80.4								
480-176967-19	FIELD BLANK 1	83.6	80.0								
480-176967-20	EQUIPMENT BLANK	76.0	84.9								
480-176967-21	D-7	62.8	86.7								
LCS 160-487322/1-A	Lab Control Sample	78.3	83.0								
LCS 160-487353/1-A	Lab Control Sample	75.7	78.5								
LCSD 160-487322/2-A	Lab Control Sample Dup	80.4	79.3								
LCSD 160-487353/2-A	Lab Control Sample Dup	85.0	80.4								
MB 160-487322/23-A	Method Blank	76.5	86.4								
MB 160-487353/23-A	Method Blank	79.2	85.2								

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 480-555581/1-A
Matrix: Water
Analysis Batch: 556398

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555581

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND	^	0.0020		mg/L		10/27/20 09:05	10/28/20 13:53	1
Boron	ND		0.020		mg/L		10/27/20 09:05	10/28/20 13:53	1
Calcium	ND		0.50		mg/L		10/27/20 09:05	10/28/20 13:53	1
Chromium	ND		0.0040		mg/L		10/27/20 09:05	10/28/20 13:53	1
Lead	ND		0.010		mg/L		10/27/20 09:05	10/28/20 13:53	1
Lithium	ND		0.030		mg/L		10/27/20 09:05	10/28/20 13:53	1

Lab Sample ID: LCS 480-555581/2-A
Matrix: Water
Analysis Batch: 556398

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555581

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.204	^	mg/L		102	80 - 120
Boron	0.200	0.202		mg/L		101	80 - 120
Calcium	10.0	9.92		mg/L		99	80 - 120
Chromium	0.200	0.199		mg/L		100	80 - 120
Lead	0.200	0.195		mg/L		98	80 - 120

Lab Sample ID: 480-176967-18 MS
Matrix: Water
Analysis Batch: 556398

Client Sample ID: DUP-2
Prep Type: Total/NA
Prep Batch: 555581

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.072	^	0.200	0.268	^	mg/L		98	75 - 125
Boron	0.025		0.200	0.223		mg/L		99	75 - 125
Calcium	108		10.0	116.3	4	mg/L		85	75 - 125
Chromium	ND		0.200	0.193		mg/L		95	75 - 125
Lead	ND		0.200	0.193		mg/L		97	75 - 125

Lab Sample ID: 480-176967-18 MSD
Matrix: Water
Analysis Batch: 556398

Client Sample ID: DUP-2
Prep Type: Total/NA
Prep Batch: 555581

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	0.072	^	0.200	0.277	^	mg/L		103	75 - 125	3	20
Boron	0.025		0.200	0.228		mg/L		102	75 - 125	2	20
Calcium	108		10.0	120.2	4	mg/L		124	75 - 125	3	20
Chromium	ND		0.200	0.200		mg/L		99	75 - 125	4	20
Lead	ND		0.200	0.203		mg/L		101	75 - 125	5	20

Lab Sample ID: MB 480-555583/1-A
Matrix: Water
Analysis Batch: 555924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND	^	0.0020		mg/L		10/26/20 10:17	10/26/20 23:00	1
Boron	ND		0.020		mg/L		10/26/20 10:17	10/26/20 23:00	1
Calcium	ND		0.50		mg/L		10/26/20 10:17	10/26/20 23:00	1
Chromium	ND		0.0040		mg/L		10/26/20 10:17	10/26/20 23:00	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 480-555583/1-A
Matrix: Water
Analysis Batch: 555924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.010		mg/L		10/26/20 10:17	10/26/20 23:00	1
Lithium	ND		0.030		mg/L		10/26/20 10:17	10/26/20 23:00	1

Lab Sample ID: LCS 480-555583/2-A
Matrix: Water
Analysis Batch: 555924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.200	0.201	^	mg/L		100	80 - 120
Boron	0.200	0.192		mg/L		96	80 - 120
Calcium	10.0	9.72		mg/L		97	80 - 120
Chromium	0.200	0.188		mg/L		94	80 - 120
Lead	0.200	0.190		mg/L		95	80 - 120

Lab Sample ID: 480-176967-1 MS
Matrix: Water
Analysis Batch: 555924

Client Sample ID: D-1D
Prep Type: Total/NA
Prep Batch: 555583

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.050	^	0.200	0.253	^	mg/L		102	75 - 125
Boron	ND		0.200	0.218		mg/L		100	75 - 125
Calcium	91.2		10.0	101.0	4	mg/L		98	75 - 125
Chromium	0.0067		0.200	0.198		mg/L		96	75 - 125
Lead	ND		0.200	0.198		mg/L		99	75 - 125

Lab Sample ID: 480-176967-1 MSD
Matrix: Water
Analysis Batch: 555924

Client Sample ID: D-1D
Prep Type: Total/NA
Prep Batch: 555583

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	0.050	^	0.200	0.249	^	mg/L		100	75 - 125	2	20
Boron	ND		0.200	0.217		mg/L		99	75 - 125	0	20
Calcium	91.2		10.0	100.1	4	mg/L		89	75 - 125	1	20
Chromium	0.0067		0.200	0.199		mg/L		96	75 - 125	0	20
Lead	ND		0.200	0.197		mg/L		98	75 - 125	0	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 480-555582/1-A
Matrix: Water
Analysis Batch: 556911

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:16	1
Beryllium	ND		0.70		ug/L		10/27/20 08:40	10/30/20 18:16	1
Cadmium	ND		0.50		ug/L		10/27/20 08:40	10/30/20 18:16	1
Cobalt	ND	^	0.30		ug/L		10/27/20 08:40	10/30/20 18:16	1
Molybdenum	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:16	1
Selenium	ND		1.0		ug/L		10/27/20 08:40	10/30/20 18:16	1
Thallium	ND		0.20		ug/L		10/27/20 08:40	10/30/20 18:16	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 480-555582/1-A
Matrix: Water
Analysis Batch: 557475

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		10/27/20 08:40	11/04/20 17:46	1

Lab Sample ID: LCS 480-555582/2-A
Matrix: Water
Analysis Batch: 556911

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	20.0	18.68		ug/L		93	80 - 120
Beryllium	20.0	19.89		ug/L		99	80 - 120
Cadmium	20.0	19.22		ug/L		96	80 - 120
Cobalt	20.0	19.71	^	ug/L		99	80 - 120
Molybdenum	20.0	19.83		ug/L		99	80 - 120
Selenium	20.0	19.60		ug/L		98	80 - 120
Thallium	20.0	20.03		ug/L		100	80 - 120

Lab Sample ID: LCS 480-555582/2-A
Matrix: Water
Analysis Batch: 557475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	20.61		ug/L		103	80 - 120

Lab Sample ID: 480-176967-19 MS
Matrix: Water
Analysis Batch: 556911

Client Sample ID: FIELD BLANK 1
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		20.0	18.33		ug/L		92	75 - 125
Beryllium	ND		20.0	19.65		ug/L		98	75 - 125
Cadmium	ND		20.0	18.92		ug/L		95	75 - 125
Cobalt	ND	^	20.0	19.15	^	ug/L		96	75 - 125
Molybdenum	ND		20.0	19.86		ug/L		99	75 - 125
Selenium	ND		20.0	19.32		ug/L		97	75 - 125
Thallium	ND		20.0	19.40		ug/L		97	75 - 125

Lab Sample ID: 480-176967-19 MS
Matrix: Water
Analysis Batch: 557475

Client Sample ID: FIELD BLANK 1
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		20.0	20.97		ug/L		102	75 - 125

Lab Sample ID: 480-176967-19 MSD
Matrix: Water
Analysis Batch: 556911

Client Sample ID: FIELD BLANK 1
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		20.0	18.86		ug/L		94	75 - 125	3	20
Beryllium	ND		20.0	19.68		ug/L		98	75 - 125	0	20
Cadmium	ND		20.0	19.97		ug/L		100	75 - 125	5	20

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

Lab Sample ID: 480-176967-19 MSD
Matrix: Water
Analysis Batch: 556911

Client Sample ID: FIELD BLANK 1
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	ND	^	20.0	19.88	^	ug/L		99	75 - 125	4	20
Molybdenum	ND		20.0	20.19		ug/L		101	75 - 125	2	20
Selenium	ND		20.0	19.66		ug/L		98	75 - 125	2	20
Thallium	ND		20.0	20.13		ug/L		101	75 - 125	4	20

Lab Sample ID: 480-176967-19 MSD
Matrix: Water
Analysis Batch: 557475

Client Sample ID: FIELD BLANK 1
Prep Type: Total/NA
Prep Batch: 555582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		20.0	21.72		ug/L		106	75 - 125	4	20

Lab Sample ID: MB 480-555588/1-A
Matrix: Water
Analysis Batch: 555880

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	1.0		ug/L		10/26/20 09:55	10/26/20 18:15	1
Arsenic	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:15	1
Beryllium	ND		0.70		ug/L		10/26/20 09:55	10/26/20 18:15	1
Cadmium	ND		0.50		ug/L		10/26/20 09:55	10/26/20 18:15	1
Cobalt	ND	^	0.30		ug/L		10/26/20 09:55	10/26/20 18:15	1
Molybdenum	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:15	1
Selenium	ND		1.0		ug/L		10/26/20 09:55	10/26/20 18:15	1
Thallium	ND		0.20		ug/L		10/26/20 09:55	10/26/20 18:15	1

Lab Sample ID: LCS 480-555588/2-A
Matrix: Water
Analysis Batch: 555880

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	19.30	^	ug/L		97	80 - 120
Arsenic	20.0	18.08		ug/L		90	80 - 120
Beryllium	20.0	22.21		ug/L		111	80 - 120
Cadmium	20.0	20.18		ug/L		101	80 - 120
Cobalt	20.0	18.55	^	ug/L		93	80 - 120
Molybdenum	20.0	19.48		ug/L		97	80 - 120
Selenium	20.0	20.72		ug/L		104	80 - 120
Thallium	20.0	20.62		ug/L		103	80 - 120

Lab Sample ID: 480-176967-5 MS
Matrix: Water
Analysis Batch: 555880

Client Sample ID: D-3D
Prep Type: Total/NA
Prep Batch: 555588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND	^	20.0	21.46	^	ug/L		107	75 - 125
Arsenic	ND		20.0	19.99		ug/L		100	75 - 125
Beryllium	ND		20.0	22.32		ug/L		112	75 - 125
Cadmium	ND		20.0	19.58		ug/L		98	75 - 125
Cobalt	0.54	^	20.0	17.98	^	ug/L		87	75 - 125

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

Lab Sample ID: 480-176967-5 MS
Matrix: Water
Analysis Batch: 555880

Client Sample ID: D-3D
Prep Type: Total/NA
Prep Batch: 555588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	ND		20.0	20.54		ug/L		102	75 - 125
Selenium	ND		20.0	21.48		ug/L		104	75 - 125
Thallium	ND		20.0	19.00		ug/L		95	75 - 125

Lab Sample ID: 480-176967-5 MSD
Matrix: Water
Analysis Batch: 555880

Client Sample ID: D-3D
Prep Type: Total/NA
Prep Batch: 555588

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND	^	20.0	21.47	^	ug/L		107	75 - 125	0	20
Arsenic	ND		20.0	20.88		ug/L		104	75 - 125	4	20
Beryllium	ND		20.0	21.23		ug/L		106	75 - 125	5	20
Cadmium	ND		20.0	20.06		ug/L		100	75 - 125	2	20
Cobalt	0.54	^	20.0	18.62	^	ug/L		90	75 - 125	4	20
Molybdenum	ND		20.0	21.71		ug/L		108	75 - 125	6	20
Selenium	ND		20.0	22.31		ug/L		108	75 - 125	4	20
Thallium	ND		20.0	19.69		ug/L		98	75 - 125	4	20

Lab Sample ID: MB 480-557946/1-A
Matrix: Water
Analysis Batch: 558329

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 557946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0		ug/L		11/07/20 10:28	11/10/20 11:18	1

Lab Sample ID: LCS 480-557946/2-A
Matrix: Water
Analysis Batch: 558329

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 557946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	20.0	19.47		ug/L		97	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-555804/1-A
Matrix: Water
Analysis Batch: 555858

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555804

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/26/20 14:51	10/26/20 19:13	1

Lab Sample ID: LCS 480-555804/2-A
Matrix: Water
Analysis Batch: 555858

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555804

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	5.88		ug/L		88	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 480-555974/1-A
Matrix: Water
Analysis Batch: 556073
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 16:46	1

Lab Sample ID: LCS 480-555974/2-A
Matrix: Water
Analysis Batch: 556073
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	6.85		ug/L		103	80 - 120

Lab Sample ID: 480-176967-10 MS
Matrix: Water
Analysis Batch: 556073
Client Sample ID: D-5S2
Prep Type: Total/NA
Prep Batch: 555974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		6.67	6.87		ug/L		103	80 - 120

Lab Sample ID: 480-176967-10 MSD
Matrix: Water
Analysis Batch: 556073
Client Sample ID: D-5S2
Prep Type: Total/NA
Prep Batch: 555974

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		6.67	6.87		ug/L		103	80 - 120	0	20

Lab Sample ID: MB 480-555976/1-A
Matrix: Water
Analysis Batch: 556073
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 555976

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20		ug/L		10/27/20 13:20	10/27/20 18:04	1

Lab Sample ID: LCS 480-555976/2-A
Matrix: Water
Analysis Batch: 556073
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 555976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	6.67	6.58		ug/L		99	80 - 120

Method: D516-90, 02 - Sulfate

Lab Sample ID: MB 480-556095/121
Matrix: Water
Analysis Batch: 556095
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			10/28/20 03:27	1

Method: D516-90, 02 - Sulfate (Continued)

Lab Sample ID: MB 480-556095/99
Matrix: Water
Analysis Batch: 556095

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0		mg/L			10/28/20 00:33	1

Lab Sample ID: LCS 480-556095/100
Matrix: Water
Analysis Batch: 556095

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.27		mg/L		101	90 - 110

Lab Sample ID: LCS 480-556095/122
Matrix: Water
Analysis Batch: 556095

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	31.23		mg/L		104	90 - 110

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

Lab Sample ID: MB 480-555633/1
Matrix: Water
Analysis Batch: 555633

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			10/24/20 19:19	1

Lab Sample ID: LCS 480-555633/2
Matrix: Water
Analysis Batch: 555633

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	502	541.0		mg/L		108	85 - 115

Lab Sample ID: 480-176967-11 DU
Matrix: Water
Analysis Batch: 555633

Client Sample ID: D-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	499		532.0		mg/L		6	10

Lab Sample ID: MB 480-555634/1
Matrix: Water
Analysis Batch: 555634

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			10/24/20 19:20	1

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

Lab Sample ID: LCS 480-555634/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 555634

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			502	495.0		mg/L		99	85 - 115		

Lab Sample ID: 480-176967-12 DU — **Client Sample ID: D-9**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 555634

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	466			456.0		mg/L				2	10

Lab Sample ID: MB 480-555865/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 555865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			10/26/20 23:07	1

Lab Sample ID: LCS 480-555865/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 555865

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			502	497.0		mg/L		99	85 - 115		

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 480-556093/123 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 556093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 02:00	1

Lab Sample ID: MB 480-556093/132 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 556093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 02:04	1

Lab Sample ID: MB 480-556093/139 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 556093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.521		0.50		mg/L			10/28/20 02:08	1

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

Lab Sample ID: MB 480-556093/151
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 02:13	1

Lab Sample ID: MB 480-556093/161
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 02:25	1

Lab Sample ID: MB 480-556093/167
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 02:33	1

Lab Sample ID: MB 480-556093/68
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 01:38	1

Lab Sample ID: MB 480-556093/89
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 01:46	1

Lab Sample ID: MB 480-556093/99
Matrix: Water
Analysis Batch: 556093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			10/28/20 01:51	1

Lab Sample ID: LCS 480-556093/122
Matrix: Water
Analysis Batch: 556093

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			25.0	25.14		mg/L		101	90 - 110		

Lab Sample ID: LCS 480-556093/131
Matrix: Water
Analysis Batch: 556093

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			25.0	25.12		mg/L		100	90 - 110		

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: LCS 480-556093/138
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.29		mg/L		101	90 - 110

Lab Sample ID: LCS 480-556093/150
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.06		mg/L		100	90 - 110

Lab Sample ID: LCS 480-556093/160
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	24.93		mg/L		100	90 - 110

Lab Sample ID: LCS 480-556093/166
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	24.87		mg/L		99	90 - 110

Lab Sample ID: LCS 480-556093/67
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.04		mg/L		100	90 - 110

Lab Sample ID: LCS 480-556093/88
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.23		mg/L		101	90 - 110

Lab Sample ID: LCS 480-556093/98
Matrix: Water
Analysis Batch: 556093

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.16		mg/L		101	90 - 110

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 480-555891/27
Matrix: Water
Analysis Batch: 555891

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			10/26/20 13:02	1

Lab Sample ID: MB 480-555891/3
Matrix: Water
Analysis Batch: 555891

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			10/26/20 11:25	1

Lab Sample ID: MB 480-555891/51
Matrix: Water
Analysis Batch: 555891

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050		mg/L			10/26/20 14:11	1

Lab Sample ID: LCS 480-555891/28
Matrix: Water
Analysis Batch: 555891

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	0.970		mg/L		97	90 - 110

Lab Sample ID: LCS 480-555891/4
Matrix: Water
Analysis Batch: 555891

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.00		mg/L		100	90 - 110

Lab Sample ID: LCS 480-555891/52
Matrix: Water
Analysis Batch: 555891

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	0.970		mg/L		97	90 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-555657/1
Matrix: Water
Analysis Batch: 555657

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

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

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: LCS 480-555657/23
Matrix: Water
Analysis Batch: 555657

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

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

Lab Sample ID: LCS 480-555657/45
Matrix: Water
Analysis Batch: 555657

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

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

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-487318/23-A
Matrix: Water
Analysis Batch: 492806

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487318

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1509	U	0.201	0.201	1.00	0.337	pCi/L	10/30/20 09:53	12/22/20 09:10	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.5*		*40 - 110*	*10/30/20 09:53*	*12/22/20 09:10*	*1*

Lab Sample ID: LCSD 160-487318/2-A
Matrix: Water
Analysis Batch: 492601

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487318

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.3	9.983		1.33	1.00	0.381	pCi/L	88	75 - 125	NaN	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*80.4*		*40 - 110*

Lab Sample ID: MB 160-487348/23-A
Matrix: Water
Analysis Batch: 492889

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487348

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04060	U	0.158	0.158	1.00	0.304	pCi/L	10/30/20 14:13	12/23/20 07:52	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*79.2*		*40 - 110*	*10/30/20 14:13*	*12/23/20 07:52*	*1*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-487348/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 492806 — **Prep Batch: 487348**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	5.243	*	0.938	1.00	0.514	pCi/L	46	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*75.7*		*40 - 110*

Lab Sample ID: LCSD 160-487348/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 492806 — **Prep Batch: 487348**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.731	*	1.34	1.00	0.464	pCi/L	86	75 - 125	1.97	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*85.0*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-487322/23-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 492601 — **Prep Batch: 487322**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1984	U	0.272	0.273	1.00	0.454	pCi/L	10/30/20 10:37	12/21/20 12:16	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.5*		*40 - 110*	*10/30/20 10:37*	*12/21/20 12:16*	*1*
Y Carrier	*86.4*		*40 - 110*	*10/30/20 10:37*	*12/21/20 12:16*	*1*

Lab Sample ID: LCS 160-487322/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 492638 — **Prep Batch: 487322**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.56	6.900		0.918	1.00	0.495	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*78.3*		*40 - 110*
Y Carrier	*83.0*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-487322/2-A
Matrix: Water
Analysis Batch: 492638

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487322

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.56	7.301		0.966	1.00	0.546	pCi/L	97	75 - 125	0.21	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*80.4*		*40 - 110*
Y Carrier	*79.3*		*40 - 110*

Lab Sample ID: MB 160-487353/23-A
Matrix: Water
Analysis Batch: 492806

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487353

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1579	U	0.284	0.284	1.00	0.481	pCi/L	10/30/20 14:38	12/22/20 13:28	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*79.2*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*
Y Carrier	*85.2*		*40 - 110*	*10/30/20 14:38*	*12/22/20 13:28*	*1*

Lab Sample ID: LCS 160-487353/1-A
Matrix: Water
Analysis Batch: 492800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487353

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.56	3.509	*	0.632	1.00	0.548	pCi/L	46	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*75.7*		*40 - 110*
Y Carrier	*78.5*		*40 - 110*

Lab Sample ID: LCSD 160-487353/2-A
Matrix: Water
Analysis Batch: 492800

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487353

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.56	5.159	*	0.745	1.00	0.472	pCi/L	68	75 - 125	1.20	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*85.0*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Metals

Prep Batch: 555581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	3005A	
480-176967-18	DUP-2	Total/NA	Water	3005A	
480-176967-19	FIELD BLANK 1	Total/NA	Water	3005A	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	3005A	
480-176967-21	D-7	Total/NA	Water	3005A	
MB 480-555581/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-555581/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-176967-18 MS	DUP-2	Total/NA	Water	3005A	
480-176967-18 MSD	DUP-2	Total/NA	Water	3005A	

Prep Batch: 555582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	3020A	
480-176967-18	DUP-2	Total/NA	Water	3020A	
480-176967-19	FIELD BLANK 1	Total/NA	Water	3020A	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	3020A	
480-176967-21	D-7	Total/NA	Water	3020A	
MB 480-555582/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-555582/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-176967-19 MS	FIELD BLANK 1	Total/NA	Water	3020A	
480-176967-19 MSD	FIELD BLANK 1	Total/NA	Water	3020A	

Prep Batch: 555583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	3005A	
480-176967-2	D-1S	Total/NA	Water	3005A	
480-176967-3	D-2D	Total/NA	Water	3005A	
480-176967-4	D-2S	Total/NA	Water	3005A	
480-176967-5	D-3D	Total/NA	Water	3005A	
480-176967-6	D-3S	Total/NA	Water	3005A	
480-176967-7	D-4D	Total/NA	Water	3005A	
480-176967-8	D-4S	Total/NA	Water	3005A	
480-176967-9	D-5D	Total/NA	Water	3005A	
480-176967-10	D-5S2	Total/NA	Water	3005A	
480-176967-11	D-8	Total/NA	Water	3005A	
480-176967-12	D-9	Total/NA	Water	3005A	
480-176967-13	U-4D	Total/NA	Water	3005A	
480-176967-14	U-4S	Total/NA	Water	3005A	
480-176967-15	U-5D	Total/NA	Water	3005A	
480-176967-16	U-5S	Total/NA	Water	3005A	
MB 480-555583/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-555583/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-176967-1 MS	D-1D	Total/NA	Water	3005A	
480-176967-1 MSD	D-1D	Total/NA	Water	3005A	

Prep Batch: 555588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	3020A	
480-176967-2	D-1S	Total/NA	Water	3020A	
480-176967-3	D-2D	Total/NA	Water	3020A	
480-176967-4	D-2S	Total/NA	Water	3020A	

Metals (Continued)

Prep Batch: 555588 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-5	D-3D	Total/NA	Water	3020A	
480-176967-6	D-3S	Total/NA	Water	3020A	
480-176967-7	D-4D	Total/NA	Water	3020A	
480-176967-8	D-4S	Total/NA	Water	3020A	
480-176967-9	D-5D	Total/NA	Water	3020A	
480-176967-10	D-5S2	Total/NA	Water	3020A	
480-176967-11	D-8	Total/NA	Water	3020A	
480-176967-12	D-9	Total/NA	Water	3020A	
480-176967-13	U-4D	Total/NA	Water	3020A	
480-176967-14	U-4S	Total/NA	Water	3020A	
480-176967-15	U-5D	Total/NA	Water	3020A	
480-176967-16	U-5S	Total/NA	Water	3020A	
MB 480-555588/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-555588/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-176967-5 MS	D-3D	Total/NA	Water	3020A	
480-176967-5 MSD	D-3D	Total/NA	Water	3020A	

Prep Batch: 555804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	7470A	
480-176967-2	D-1S	Total/NA	Water	7470A	
480-176967-3	D-2D	Total/NA	Water	7470A	
480-176967-4	D-2S	Total/NA	Water	7470A	
480-176967-5	D-3D	Total/NA	Water	7470A	
480-176967-6	D-3S	Total/NA	Water	7470A	
480-176967-7	D-4D	Total/NA	Water	7470A	
480-176967-8	D-4S	Total/NA	Water	7470A	
MB 480-555804/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-555804/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 555858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	7470A	555804
480-176967-2	D-1S	Total/NA	Water	7470A	555804
480-176967-3	D-2D	Total/NA	Water	7470A	555804
480-176967-4	D-2S	Total/NA	Water	7470A	555804
480-176967-5	D-3D	Total/NA	Water	7470A	555804
480-176967-6	D-3S	Total/NA	Water	7470A	555804
480-176967-7	D-4D	Total/NA	Water	7470A	555804
480-176967-8	D-4S	Total/NA	Water	7470A	555804
MB 480-555804/1-A	Method Blank	Total/NA	Water	7470A	555804
LCS 480-555804/2-A	Lab Control Sample	Total/NA	Water	7470A	555804

Analysis Batch: 555880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	6020B	555588
480-176967-2	D-1S	Total/NA	Water	6020B	555588
480-176967-3	D-2D	Total/NA	Water	6020B	555588
480-176967-4	D-2S	Total/NA	Water	6020B	555588
480-176967-5	D-3D	Total/NA	Water	6020B	555588
480-176967-6	D-3S	Total/NA	Water	6020B	555588

Metals (Continued)

Analysis Batch: 555880 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-7	D-4D	Total/NA	Water	6020B	555588
480-176967-8	D-4S	Total/NA	Water	6020B	555588
480-176967-9	D-5D	Total/NA	Water	6020B	555588
480-176967-10	D-5S2	Total/NA	Water	6020B	555588
480-176967-11	D-8	Total/NA	Water	6020B	555588
480-176967-12	D-9	Total/NA	Water	6020B	555588
480-176967-13	U-4D	Total/NA	Water	6020B	555588
480-176967-14	U-4S	Total/NA	Water	6020B	555588
480-176967-15	U-5D	Total/NA	Water	6020B	555588
480-176967-16	U-5S	Total/NA	Water	6020B	555588
MB 480-555588/1-A	Method Blank	Total/NA	Water	6020B	555588
LCS 480-555588/2-A	Lab Control Sample	Total/NA	Water	6020B	555588
480-176967-5 MS	D-3D	Total/NA	Water	6020B	555588
480-176967-5 MSD	D-3D	Total/NA	Water	6020B	555588

Analysis Batch: 555924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	6010D	555583
480-176967-2	D-1S	Total/NA	Water	6010D	555583
480-176967-3	D-2D	Total/NA	Water	6010D	555583
480-176967-4	D-2S	Total/NA	Water	6010D	555583
480-176967-5	D-3D	Total/NA	Water	6010D	555583
480-176967-6	D-3S	Total/NA	Water	6010D	555583
480-176967-7	D-4D	Total/NA	Water	6010D	555583
480-176967-8	D-4S	Total/NA	Water	6010D	555583
480-176967-9	D-5D	Total/NA	Water	6010D	555583
480-176967-10	D-5S2	Total/NA	Water	6010D	555583
480-176967-11	D-8	Total/NA	Water	6010D	555583
480-176967-12	D-9	Total/NA	Water	6010D	555583
480-176967-13	U-4D	Total/NA	Water	6010D	555583
480-176967-14	U-4S	Total/NA	Water	6010D	555583
480-176967-15	U-5D	Total/NA	Water	6010D	555583
480-176967-16	U-5S	Total/NA	Water	6010D	555583
MB 480-555583/1-A	Method Blank	Total/NA	Water	6010D	555583
LCS 480-555583/2-A	Lab Control Sample	Total/NA	Water	6010D	555583
480-176967-1 MS	D-1D	Total/NA	Water	6010D	555583
480-176967-1 MSD	D-1D	Total/NA	Water	6010D	555583

Prep Batch: 555974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-9	D-5D	Total/NA	Water	7470A	
480-176967-10	D-5S2	Total/NA	Water	7470A	
480-176967-11	D-8	Total/NA	Water	7470A	
480-176967-12	D-9	Total/NA	Water	7470A	
480-176967-13	U-4D	Total/NA	Water	7470A	
480-176967-14	U-4S	Total/NA	Water	7470A	
480-176967-15	U-5D	Total/NA	Water	7470A	
480-176967-16	U-5S	Total/NA	Water	7470A	
MB 480-555974/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-555974/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-176967-10 MS	D-5S2	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 555974 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-10 MSD	D-5S2	Total/NA	Water	7470A	

Prep Batch: 555976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	7470A	
480-176967-18	DUP-2	Total/NA	Water	7470A	
480-176967-19	FIELD BLANK 1	Total/NA	Water	7470A	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	7470A	
480-176967-21	D-7	Total/NA	Water	7470A	
MB 480-555976/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-555976/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 556073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-9	D-5D	Total/NA	Water	7470A	555974
480-176967-10	D-5S2	Total/NA	Water	7470A	555974
480-176967-11	D-8	Total/NA	Water	7470A	555974
480-176967-12	D-9	Total/NA	Water	7470A	555974
480-176967-13	U-4D	Total/NA	Water	7470A	555974
480-176967-14	U-4S	Total/NA	Water	7470A	555974
480-176967-15	U-5D	Total/NA	Water	7470A	555974
480-176967-16	U-5S	Total/NA	Water	7470A	555974
480-176967-17	DUP-1	Total/NA	Water	7470A	555976
480-176967-18	DUP-2	Total/NA	Water	7470A	555976
480-176967-19	FIELD BLANK 1	Total/NA	Water	7470A	555976
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	7470A	555976
480-176967-21	D-7	Total/NA	Water	7470A	555976
MB 480-555974/1-A	Method Blank	Total/NA	Water	7470A	555974
MB 480-555976/1-A	Method Blank	Total/NA	Water	7470A	555976
LCS 480-555974/2-A	Lab Control Sample	Total/NA	Water	7470A	555974
LCS 480-555976/2-A	Lab Control Sample	Total/NA	Water	7470A	555976
480-176967-10 MS	D-5S2	Total/NA	Water	7470A	555974
480-176967-10 MSD	D-5S2	Total/NA	Water	7470A	555974

Analysis Batch: 556398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	6010D	555581
480-176967-18	DUP-2	Total/NA	Water	6010D	555581
480-176967-19	FIELD BLANK 1	Total/NA	Water	6010D	555581
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	6010D	555581
480-176967-21	D-7	Total/NA	Water	6010D	555581
MB 480-555581/1-A	Method Blank	Total/NA	Water	6010D	555581
LCS 480-555581/2-A	Lab Control Sample	Total/NA	Water	6010D	555581
480-176967-18 MS	DUP-2	Total/NA	Water	6010D	555581
480-176967-18 MSD	DUP-2	Total/NA	Water	6010D	555581

Analysis Batch: 556911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	6020B	555582
480-176967-18	DUP-2	Total/NA	Water	6020B	555582
480-176967-19	FIELD BLANK 1	Total/NA	Water	6020B	555582

Metals (Continued)

Analysis Batch: 556911 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	6020B	555582
480-176967-21	D-7	Total/NA	Water	6020B	555582
MB 480-555582/1-A	Method Blank	Total/NA	Water	6020B	555582
LCS 480-555582/2-A	Lab Control Sample	Total/NA	Water	6020B	555582
480-176967-19 MS	FIELD BLANK 1	Total/NA	Water	6020B	555582
480-176967-19 MSD	FIELD BLANK 1	Total/NA	Water	6020B	555582

Analysis Batch: 557475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-17	DUP-1	Total/NA	Water	6020B	555582
480-176967-19	FIELD BLANK 1	Total/NA	Water	6020B	555582
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	6020B	555582
480-176967-21	D-7	Total/NA	Water	6020B	555582
MB 480-555582/1-A	Method Blank	Total/NA	Water	6020B	555582
LCS 480-555582/2-A	Lab Control Sample	Total/NA	Water	6020B	555582
480-176967-19 MS	FIELD BLANK 1	Total/NA	Water	6020B	555582
480-176967-19 MSD	FIELD BLANK 1	Total/NA	Water	6020B	555582

Prep Batch: 557946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-18	DUP-2	Total/NA	Water	3020A	
MB 480-557946/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-557946/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 558329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-18	DUP-2	Total/NA	Water	6020B	557946
MB 480-557946/1-A	Method Blank	Total/NA	Water	6020B	557946
LCS 480-557946/2-A	Lab Control Sample	Total/NA	Water	6020B	557946

General Chemistry

Analysis Batch: 555633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-2	D-1S	Total/NA	Water	SM 2540C	
480-176967-4	D-2S	Total/NA	Water	SM 2540C	
480-176967-5	D-3D	Total/NA	Water	SM 2540C	
480-176967-6	D-3S	Total/NA	Water	SM 2540C	
480-176967-7	D-4D	Total/NA	Water	SM 2540C	
480-176967-8	D-4S	Total/NA	Water	SM 2540C	
480-176967-9	D-5D	Total/NA	Water	SM 2540C	
480-176967-10	D-5S2	Total/NA	Water	SM 2540C	
480-176967-11	D-8	Total/NA	Water	SM 2540C	
480-176967-21	D-7	Total/NA	Water	SM 2540C	
MB 480-555633/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-555633/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-176967-11 DU	D-8	Total/NA	Water	SM 2540C	

Analysis Batch: 555634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-12	D-9	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 555634 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-13	U-4D	Total/NA	Water	SM 2540C	
480-176967-14	U-4S	Total/NA	Water	SM 2540C	
480-176967-15	U-5D	Total/NA	Water	SM 2540C	
480-176967-16	U-5S	Total/NA	Water	SM 2540C	
480-176967-17	DUP-1	Total/NA	Water	SM 2540C	
480-176967-18	DUP-2	Total/NA	Water	SM 2540C	
480-176967-19	FIELD BLANK 1	Total/NA	Water	SM 2540C	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 480-555634/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-555634/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-176967-12 DU	D-9	Total/NA	Water	SM 2540C	

Analysis Batch: 555657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	SM 4500 H+ B	
480-176967-2	D-1S	Total/NA	Water	SM 4500 H+ B	
480-176967-3	D-2D	Total/NA	Water	SM 4500 H+ B	
480-176967-4	D-2S	Total/NA	Water	SM 4500 H+ B	
480-176967-5	D-3D	Total/NA	Water	SM 4500 H+ B	
480-176967-6	D-3S	Total/NA	Water	SM 4500 H+ B	
480-176967-7	D-4D	Total/NA	Water	SM 4500 H+ B	
480-176967-8	D-4S	Total/NA	Water	SM 4500 H+ B	
480-176967-9	D-5D	Total/NA	Water	SM 4500 H+ B	
480-176967-10	D-5S2	Total/NA	Water	SM 4500 H+ B	
480-176967-11	D-8	Total/NA	Water	SM 4500 H+ B	
480-176967-12	D-9	Total/NA	Water	SM 4500 H+ B	
480-176967-13	U-4D	Total/NA	Water	SM 4500 H+ B	
480-176967-14	U-4S	Total/NA	Water	SM 4500 H+ B	
480-176967-15	U-5D	Total/NA	Water	SM 4500 H+ B	
480-176967-16	U-5S	Total/NA	Water	SM 4500 H+ B	
480-176967-17	DUP-1	Total/NA	Water	SM 4500 H+ B	
480-176967-18	DUP-2	Total/NA	Water	SM 4500 H+ B	
480-176967-19	FIELD BLANK 1	Total/NA	Water	SM 4500 H+ B	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 H+ B	
480-176967-21	D-7	Total/NA	Water	SM 4500 H+ B	
LCS 480-555657/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-555657/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-555657/45	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 555865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	SM 2540C	
480-176967-3	D-2D	Total/NA	Water	SM 2540C	
MB 480-555865/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-555865/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 555891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	SM 4500 F C	
480-176967-2	D-1S	Total/NA	Water	SM 4500 F C	
480-176967-3	D-2D	Total/NA	Water	SM 4500 F C	

General Chemistry (Continued)

Analysis Batch: 555891 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-4	D-2S	Total/NA	Water	SM 4500 F C	
480-176967-5	D-3D	Total/NA	Water	SM 4500 F C	
480-176967-6	D-3S	Total/NA	Water	SM 4500 F C	
480-176967-7	D-4D	Total/NA	Water	SM 4500 F C	
480-176967-8	D-4S	Total/NA	Water	SM 4500 F C	
480-176967-9	D-5D	Total/NA	Water	SM 4500 F C	
480-176967-10	D-5S2	Total/NA	Water	SM 4500 F C	
480-176967-11	D-8	Total/NA	Water	SM 4500 F C	
480-176967-12	D-9	Total/NA	Water	SM 4500 F C	
480-176967-13	U-4D	Total/NA	Water	SM 4500 F C	
480-176967-14	U-4S	Total/NA	Water	SM 4500 F C	
480-176967-15	U-5D	Total/NA	Water	SM 4500 F C	
480-176967-16	U-5S	Total/NA	Water	SM 4500 F C	
480-176967-17	DUP-1	Total/NA	Water	SM 4500 F C	
480-176967-18	DUP-2	Total/NA	Water	SM 4500 F C	
480-176967-19	FIELD BLANK 1	Total/NA	Water	SM 4500 F C	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 F C	
480-176967-21	D-7	Total/NA	Water	SM 4500 F C	
MB 480-555891/27	Method Blank	Total/NA	Water	SM 4500 F C	
MB 480-555891/3	Method Blank	Total/NA	Water	SM 4500 F C	
MB 480-555891/51	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 480-555891/28	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCS 480-555891/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCS 480-555891/52	Lab Control Sample	Total/NA	Water	SM 4500 F C	

Analysis Batch: 556093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	SM 4500 Cl- E	
480-176967-2	D-1S	Total/NA	Water	SM 4500 Cl- E	
480-176967-3	D-2D	Total/NA	Water	SM 4500 Cl- E	
480-176967-4	D-2S	Total/NA	Water	SM 4500 Cl- E	
480-176967-5	D-3D	Total/NA	Water	SM 4500 Cl- E	
480-176967-6	D-3S	Total/NA	Water	SM 4500 Cl- E	
480-176967-7	D-4D	Total/NA	Water	SM 4500 Cl- E	
480-176967-8	D-4S	Total/NA	Water	SM 4500 Cl- E	
480-176967-9	D-5D	Total/NA	Water	SM 4500 Cl- E	
480-176967-10	D-5S2	Total/NA	Water	SM 4500 Cl- E	
480-176967-11	D-8	Total/NA	Water	SM 4500 Cl- E	
480-176967-12	D-9	Total/NA	Water	SM 4500 Cl- E	
480-176967-13	U-4D	Total/NA	Water	SM 4500 Cl- E	
480-176967-14	U-4S	Total/NA	Water	SM 4500 Cl- E	
480-176967-15	U-5D	Total/NA	Water	SM 4500 Cl- E	
480-176967-16	U-5S	Total/NA	Water	SM 4500 Cl- E	
480-176967-17	DUP-1	Total/NA	Water	SM 4500 Cl- E	
480-176967-18	DUP-2	Total/NA	Water	SM 4500 Cl- E	
480-176967-19	FIELD BLANK 1	Total/NA	Water	SM 4500 Cl- E	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	SM 4500 Cl- E	
480-176967-21	D-7	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/123	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/132	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/139	Method Blank	Total/NA	Water	SM 4500 Cl- E	

General Chemistry (Continued)

Analysis Batch: 556093 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-556093/151	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/161	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/167	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/68	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/89	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-556093/99	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/122	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/131	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/138	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/150	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/160	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/166	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/67	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/88	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-556093/98	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 556095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	D516-90, 02	
480-176967-2	D-1S	Total/NA	Water	D516-90, 02	
480-176967-3	D-2D	Total/NA	Water	D516-90, 02	
480-176967-4	D-2S	Total/NA	Water	D516-90, 02	
480-176967-5	D-3D	Total/NA	Water	D516-90, 02	
480-176967-6	D-3S	Total/NA	Water	D516-90, 02	
480-176967-7	D-4D	Total/NA	Water	D516-90, 02	
480-176967-8	D-4S	Total/NA	Water	D516-90, 02	
480-176967-9	D-5D	Total/NA	Water	D516-90, 02	
480-176967-10	D-5S2	Total/NA	Water	D516-90, 02	
480-176967-11	D-8	Total/NA	Water	D516-90, 02	
480-176967-12	D-9	Total/NA	Water	D516-90, 02	
480-176967-13	U-4D	Total/NA	Water	D516-90, 02	
480-176967-14	U-4S	Total/NA	Water	D516-90, 02	
480-176967-15	U-5D	Total/NA	Water	D516-90, 02	
480-176967-16	U-5S	Total/NA	Water	D516-90, 02	
480-176967-17	DUP-1	Total/NA	Water	D516-90, 02	
480-176967-18	DUP-2	Total/NA	Water	D516-90, 02	
480-176967-19	FIELD BLANK 1	Total/NA	Water	D516-90, 02	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	D516-90, 02	
480-176967-21	D-7	Total/NA	Water	D516-90, 02	
MB 480-556095/121	Method Blank	Total/NA	Water	D516-90, 02	
MB 480-556095/99	Method Blank	Total/NA	Water	D516-90, 02	
LCS 480-556095/100	Lab Control Sample	Total/NA	Water	D516-90, 02	
LCS 480-556095/122	Lab Control Sample	Total/NA	Water	D516-90, 02	

Rad

Prep Batch: 487318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	PrecSep-21	
MB 160-487318/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCSD 160-487318/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Rad

Prep Batch: 487322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-1	D-1D	Total/NA	Water	PrecSep_0	
MB 160-487322/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487322/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487322/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 487348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-2	D-1S	Total/NA	Water	PrecSep-21	
480-176967-3	D-2D	Total/NA	Water	PrecSep-21	
480-176967-4	D-2S	Total/NA	Water	PrecSep-21	
480-176967-5	D-3D	Total/NA	Water	PrecSep-21	
480-176967-6	D-3S	Total/NA	Water	PrecSep-21	
480-176967-7	D-4D	Total/NA	Water	PrecSep-21	
480-176967-8	D-4S	Total/NA	Water	PrecSep-21	
480-176967-9	D-5D	Total/NA	Water	PrecSep-21	
480-176967-10	D-5S2	Total/NA	Water	PrecSep-21	
480-176967-11	D-8	Total/NA	Water	PrecSep-21	
480-176967-12	D-9	Total/NA	Water	PrecSep-21	
480-176967-13	U-4D	Total/NA	Water	PrecSep-21	
480-176967-14	U-4S	Total/NA	Water	PrecSep-21	
480-176967-15	U-5D	Total/NA	Water	PrecSep-21	
480-176967-16	U-5S	Total/NA	Water	PrecSep-21	
480-176967-17	DUP-1	Total/NA	Water	PrecSep-21	
480-176967-18	DUP-2	Total/NA	Water	PrecSep-21	
480-176967-19	FIELD BLANK 1	Total/NA	Water	PrecSep-21	
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
480-176967-21	D-7	Total/NA	Water	PrecSep-21	
MB 160-487348/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487348/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487348/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-2	D-1S	Total/NA	Water	PrecSep_0	
480-176967-3	D-2D	Total/NA	Water	PrecSep_0	
480-176967-4	D-2S	Total/NA	Water	PrecSep_0	
480-176967-5	D-3D	Total/NA	Water	PrecSep_0	
480-176967-6	D-3S	Total/NA	Water	PrecSep_0	
480-176967-7	D-4D	Total/NA	Water	PrecSep_0	
480-176967-8	D-4S	Total/NA	Water	PrecSep_0	
480-176967-9	D-5D	Total/NA	Water	PrecSep_0	
480-176967-10	D-5S2	Total/NA	Water	PrecSep_0	
480-176967-11	D-8	Total/NA	Water	PrecSep_0	
480-176967-12	D-9	Total/NA	Water	PrecSep_0	
480-176967-13	U-4D	Total/NA	Water	PrecSep_0	
480-176967-14	U-4S	Total/NA	Water	PrecSep_0	
480-176967-15	U-5D	Total/NA	Water	PrecSep_0	
480-176967-16	U-5S	Total/NA	Water	PrecSep_0	
480-176967-17	DUP-1	Total/NA	Water	PrecSep_0	
480-176967-18	DUP-2	Total/NA	Water	PrecSep_0	
480-176967-19	FIELD BLANK 1	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 487353 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-176967-20	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
480-176967-21	D-7	Total/NA	Water	PrecSep_0	
MB 160-487353/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487353/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487353/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: D-1D
Lab Sample ID: 480-176967-1
Date Collected: 10/20/20 08:40
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/26/20 23:34	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 18:36	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:40	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		2	556095	10/28/20 03:42	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555865	10/26/20 23:07	T1S	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:01	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:21	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 11:50	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487318	10/30/20 09:53	AVB	TAL SL
Total/NA	Analysis	903.0		1	492800	12/22/20 07:21	TMS	TAL SL
Total/NA	Prep	PrecSep_0			487322	10/30/20 10:37	AVB	TAL SL
Total/NA	Analysis	904.0		1	492601	12/21/20 12:15	FLC	TAL SL

Client Sample ID: D-1S
Lab Sample ID: 480-176967-2
Date Collected: 10/20/20 08:20
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:04	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 18:38	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:42	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:31	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:02	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:24	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 11:53	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:47	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:20	TMS	TAL SL

Client Sample ID: D-2D
Lab Sample ID: 480-176967-3
Date Collected: 10/20/20 09:50
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:08	LMH	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: D-2D
Lab Sample ID: 480-176967-3
Date Collected: 10/20/20 09:50
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 18:40	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:43	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:31	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555865	10/26/20 23:07	T1S	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:02	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:34	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 11:55	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:47	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:20	TMS	TAL SL

Client Sample ID: D-2S
Lab Sample ID: 480-176967-4
Date Collected: 10/20/20 09:35
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:12	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 18:43	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:44	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:32	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:02	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:37	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 11:58	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:47	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:20	TMS	TAL SL

Client Sample ID: D-3D
Lab Sample ID: 480-176967-5
Date Collected: 10/20/20 11:10
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:15	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 18:45	AMH	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: D-3D
Lab Sample ID: 480-176967-5
Date Collected: 10/20/20 11:10
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:46	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		5	556095	10/28/20 03:38	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:56	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:39	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:00	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:21	TMS	TAL SL

Client Sample ID: D-3S
Lab Sample ID: 480-176967-6
Date Collected: 10/20/20 10:50
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:19	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:03	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:47	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		2	556095	10/28/20 03:43	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		3	556093	10/28/20 02:09	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:42	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:03	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:21	TMS	TAL SL

Client Sample ID: D-4D
Lab Sample ID: 480-176967-7
Date Collected: 10/20/20 14:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:23	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:05	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:48	BMB	TAL BUF

Client Sample ID: D-4D

Lab Sample ID: 480-176967-7

Date Collected: 10/20/20 14:00

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:33	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:13	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:45	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:08	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:21	TMS	TAL SL

Client Sample ID: D-4S

Lab Sample ID: 480-176967-8

Date Collected: 10/20/20 13:45

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:27	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:08	AMH	TAL BUF
Total/NA	Prep	7470A			555804	10/26/20 14:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	555858	10/26/20 19:50	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:33	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:09	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:47	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:10	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:22	TMS	TAL SL

Client Sample ID: D-5D

Lab Sample ID: 480-176967-9

Date Collected: 10/20/20 12:30

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:31	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:10	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 16:48	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		5	556095	10/28/20 03:40	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: D-5D
Lab Sample ID: 480-176967-9
Date Collected: 10/20/20 12:30
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:05	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:50	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:13	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:22	TMS	TAL SL

Client Sample ID: D-5S2
Lab Sample ID: 480-176967-10
Date Collected: 10/20/20 12:05
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:46	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:12	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 16:50	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		2	556095	10/28/20 03:35	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:56	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:52	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:15	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:22	TMS	TAL SL

Client Sample ID: D-8
Lab Sample ID: 480-176967-11
Date Collected: 10/20/20 10:15
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:49	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:14	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 16:55	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		5	556095	10/28/20 03:44	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:08	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:54	BEF	TAL BUF

Client Sample ID: D-8

Lab Sample ID: 480-176967-11

Date Collected: 10/20/20 10:15

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:18	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:23	TMS	TAL SL

Client Sample ID: D-9

Lab Sample ID: 480-176967-12

Date Collected: 10/21/20 11:25

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:53	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:17	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 16:56	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:35	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:06	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:57	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:20	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:23	TMS	TAL SL

Client Sample ID: U-4D

Lab Sample ID: 480-176967-13

Date Collected: 10/19/20 12:15

Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 00:57	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:19	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 16:57	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:38	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:09	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 13:11	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:23	BEF	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: U-4D
Lab Sample ID: 480-176967-13
Date Collected: 10/19/20 12:15
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:23	TMS	TAL SL

Client Sample ID: U-4S
Lab Sample ID: 480-176967-14
Date Collected: 10/19/20 11:20
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 01:01	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:21	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 17:01	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:39	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:14	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:25	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:25	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:24	TMS	TAL SL

Client Sample ID: U-5D
Lab Sample ID: 480-176967-15
Date Collected: 10/19/20 14:15
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 01:05	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:31	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 17:03	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		2	556095	10/28/20 03:48	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:30	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:28	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:28	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: U-5D
Lab Sample ID: 480-176967-15
Date Collected: 10/19/20 14:15
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:24	TMS	TAL SL

Client Sample ID: U-5S
Lab Sample ID: 480-176967-16
Date Collected: 10/19/20 13:50
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555583	10/26/20 10:17	ASD	TAL BUF
Total/NA	Analysis	6010D		1	555924	10/27/20 01:08	LMH	TAL BUF
Total/NA	Prep	3020A			555588	10/26/20 09:55	ASD	TAL BUF
Total/NA	Analysis	6020B		1	555880	10/26/20 19:33	AMH	TAL BUF
Total/NA	Prep	7470A			555974	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 17:04	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:40	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:14	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:30	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:30	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:24	TMS	TAL SL

Client Sample ID: DUP-1
Lab Sample ID: 480-176967-17
Date Collected: 10/19/20 00:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555581	10/27/20 09:05	ASD	TAL BUF
Total/NA	Analysis	6010D		1	556398	10/28/20 14:42	LMH	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	556911	10/30/20 18:46	KMP	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	557475	11/04/20 18:13	AMH	TAL BUF
Total/NA	Prep	7470A			555976	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 18:09	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:40	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:14	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:33	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:35	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:50	FLC	TAL SL

Client Sample ID: DUP-1
Lab Sample ID: 480-176967-17
Date Collected: 10/19/20 00:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:24	TMS	TAL SL

Client Sample ID: DUP-2
Lab Sample ID: 480-176967-18
Date Collected: 10/21/20 00:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555581	10/27/20 09:05	ASD	TAL BUF
Total/NA	Analysis	6010D		1	556398	10/28/20 14:00	LMH	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	556911	10/30/20 18:20	KMP	TAL BUF
Total/NA	Prep	3020A			557946	11/07/20 10:28	ADM	TAL BUF
Total/NA	Analysis	6020B		1	558329	11/10/20 11:23	KMP	TAL BUF
Total/NA	Prep	7470A			555976	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 18:10	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:41	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:31	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:43	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:38	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:51	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492800	12/22/20 13:25	TMS	TAL SL

Client Sample ID: FIELD BLANK 1
Lab Sample ID: 480-176967-19
Date Collected: 10/20/20 12:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555581	10/27/20 09:05	ASD	TAL BUF
Total/NA	Analysis	6010D		1	556398	10/28/20 14:19	LMH	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	556911	10/30/20 18:23	KMP	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	557475	11/04/20 17:50	AMH	TAL BUF
Total/NA	Prep	7470A			555976	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 18:08	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:41	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:15	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:49	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:41	BEF	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: FIELD BLANK 1
Lab Sample ID: 480-176967-19
Date Collected: 10/20/20 12:00
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:51	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492806	12/22/20 13:27	TMS	TAL SL

Client Sample ID: EQUIPMENT BLANK
Lab Sample ID: 480-176967-20
Date Collected: 10/20/20 12:05
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555581	10/27/20 09:05	ASD	TAL BUF
Total/NA	Analysis	6010D		1	556398	10/28/20 14:23	LMH	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	556911	10/30/20 18:41	KMP	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	557475	11/04/20 18:09	AMH	TAL BUF
Total/NA	Prep	7470A			555976	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 18:12	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		1	556095	10/28/20 03:44	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555634	10/24/20 19:20	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		1	556093	10/28/20 02:15	SRW	TAL BUF
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:54	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:44	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:52	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492806	12/22/20 13:28	TMS	TAL SL

Client Sample ID: D-7
Lab Sample ID: 480-176967-21
Date Collected: 10/21/20 08:20
Matrix: Water
Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			555581	10/27/20 09:05	ASD	TAL BUF
Total/NA	Analysis	6010D		1	556398	10/28/20 14:38	LMH	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	556911	10/30/20 18:44	KMP	TAL BUF
Total/NA	Prep	3020A			555582	10/27/20 08:40	ASD	TAL BUF
Total/NA	Analysis	6020B		1	557475	11/04/20 18:11	AMH	TAL BUF
Total/NA	Prep	7470A			555976	10/27/20 13:20	BMB	TAL BUF
Total/NA	Analysis	7470A		1	556073	10/27/20 18:13	BMB	TAL BUF
Total/NA	Analysis	D516-90, 02		3	556095	10/28/20 03:52	SRW	TAL BUF
Total/NA	Analysis	SM 2540C		1	555633	10/24/20 19:19	CSS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		2	556093	10/28/20 02:40	SRW	TAL BUF

Lab Chronicle

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Client Sample ID: D-7
Lab Sample ID: 480-176967-21

Date Collected: 10/21/20 08:20
Matrix: Water

Date Received: 10/22/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 F C		1	555891	10/26/20 14:57	BEF	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	555657	10/25/20 12:46	BEF	TAL BUF
Total/NA	Prep	PrecSep-21			487348	10/30/20 14:13	AVB	TAL SL
Total/NA	Analysis	903.0		1	492889	12/23/20 07:52	FLC	TAL SL
Total/NA	Prep	PrecSep_0			487353	10/30/20 14:38	AVB	TAL SL
Total/NA	Analysis	904.0		1	492806	12/22/20 13:28	TMS	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	1524384	12-31-20

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

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Lithium
D516-90, 02		Water	Sulfate
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

Method Summary

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL BUF
6020B	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
D516-90, 02	Sulfate	ASTM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 Cl- E	Chloride, Total	SM	TAL BUF
SM 4500 F C	Fluoride	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF
7470A	Preparation, Mercury	SW846	TAL BUF

Protocol References:

ASTM = ASTM International

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:

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

Sample Summary

Client: Waste Connections, Inc.
Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-176967-1	D-1D	Water	10/20/20 08:40	10/22/20 10:00	
480-176967-2	D-1S	Water	10/20/20 08:20	10/22/20 10:00	
480-176967-3	D-2D	Water	10/20/20 09:50	10/22/20 10:00	
480-176967-4	D-2S	Water	10/20/20 09:35	10/22/20 10:00	
480-176967-5	D-3D	Water	10/20/20 11:10	10/22/20 10:00	
480-176967-6	D-3S	Water	10/20/20 10:50	10/22/20 10:00	
480-176967-7	D-4D	Water	10/20/20 14:00	10/22/20 10:00	
480-176967-8	D-4S	Water	10/20/20 13:45	10/22/20 10:00	
480-176967-9	D-5D	Water	10/20/20 12:30	10/22/20 10:00	
480-176967-10	D-5S2	Water	10/20/20 12:05	10/22/20 10:00	
480-176967-11	D-8	Water	10/20/20 10:15	10/22/20 10:00	
480-176967-12	D-9	Water	10/21/20 11:25	10/22/20 10:00	
480-176967-13	U-4D	Water	10/19/20 12:15	10/22/20 10:00	
480-176967-14	U-4S	Water	10/19/20 11:20	10/22/20 10:00	
480-176967-15	U-5D	Water	10/19/20 14:15	10/22/20 10:00	
480-176967-16	U-5S	Water	10/19/20 13:50	10/22/20 10:00	
480-176967-17	DUP-1	Water	10/19/20 00:00	10/22/20 10:00	
480-176967-18	DUP-2	Water	10/21/20 00:00	10/22/20 10:00	
480-176967-19	FIELD BLANK 1	Water	10/20/20 12:00	10/22/20 10:00	
480-176967-20	EQUIPMENT BLANK	Water	10/20/20 12:05	10/22/20 10:00	
480-176967-21	D-7	Water	10/21/20 08:20	10/22/20 10:00	

Quantitation Limit Exceptions Summary

Client: Waste Connections, Inc. Job ID: 480-176967-1
Project/Site: SKB Rosemount - CCR Groundwater

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

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
D516-90, 02	Sulfate	Water	Total/NA	mg/L	2.0	5.0
SM 4500 Cl- E	Chloride	Water	Total/NA	mg/L	0.50	1.0
SM 4500 F C	Fluoride	Water	Total/NA	mg/L	0.050	0.1

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: M-S chlagel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-143901-30557.1
Client Contact: Nathaniel Beinemann	Phone: 651-792-6068	E-Mail: ryan.vandette@testamericainc.com		Page: Page 1 of 2
Company: Waste Connections, Inc.				Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			
City: Rosemount	TAT Requested (days): Standard			
State, Zip: MN, 55068				
Phone:	PO #: Purchase Order Requested			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Rosemount ELF	Project #: 48013709			
Site: Minnesota	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 6020B, 7470A	D516, SM4500_Cl_E; SM4500_H+	4500_F_C - Fluoride	2540C_Calcd - TDS	904.0 - Rad 228	903.0 - Rad 226	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D	D		
D-1S	10/20/20	9:20	6	Water			X	X	X	X	X	X		
D-2S	10/20/20	9:35	6	Water			X	X	X	X	X	X		
D-3S	10/20/20	10:50	6	Water			X	X	X	X	X	X		
D-4S	10/20/20	13:45	6	Water			X	X	X	X	X	X		
D-5S2	10/20/20	12:05	6	Water			X	X	X	X	X	X		
~~D-7~~				Water										
D-8	10/20/20	10:15	6	Water			X	X	X	X	X	X		
D-9	10/21/20	11:25	6	Water			X	X	X	X	X	X		
U-4D	10/19/20	12:15	6	Water			X	X	X	X	X	X		
U-4S	10/19/20	11:20	6	Water			X	X	X	X	X	X		
U-5D	10/19/20	14:15	6	Water			X	X	X	X	X	X		

480-176967 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/20/20 1540	GES	Joe Jack	10-21-20 1540	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10-21-20 1700	Eurofins		10/22/20 1000	TA
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: 3.8, 2.6, 2.4, 3.3, 4.2, 3.9 #17CE

Ver: 01/16/2019

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

Chain of Custody Record

TestAmerica Minneapolis SC 213

eurofins | Environment Testing TestAmerica

Client Information	Sampler: M. Schlegel	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-143901-30557.2
Client Contact: Nathaniel Beinemann	Phone: 651-792-6065	E-Mail: ryan.vandette@testamericainc.com		Page: Page 2 of 2
Company: Waste Connections, Inc.		Analysis Requested		Job #:
Address: 13425 Courthouse Blvd	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA; M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Rosemount	TAT Requested (days): Standard			
State, Zip: MN, 55068				
Phone:	PO #: Purchase Order Requested			
Email: nathanielb@wcnx.org	WO #:			
Project Name: SKB Rosemount	Project #: 48013709			
Site: Minnesota	SSOW#:			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)	6010D, 6020B, 7470A	D516, SM4500_Cl_E, SM4500_H+	4500_F_C - Fluoride	2540C_Calcd - TDS	904.0 - Rad 228	903.0 - Rad 226	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D	D		
U-5S	10/19/20	13:50	6	Water			X	X	X	X	X	X		
D-1D	10/20/20	8:40	6	Water			X	X	X	X	X	X		
D-2D	10/20/20	9:50	6	Water			X	X	X	X	X	X		
D-3D	10/20/20	11:10	6	Water			X	X	X	X	X	X		
D-4D	10/20/20	1400	6	Water			X	X	X	X	X	X		
D-5D	10/20/20	12:30	6	Water			X	X	X	X	X	X		
Dup 1	10/19/20	–	6	Water			X	X	X	X	X	X		
Dup 2	10/21/20	–	6	Water			X	X	X	X	X	X		
Field Blank	10/21/20	12:00	6	Water			X	X	X	X	X	X		
Equipment Blank	10/21/20	12:05	6	Water			X	X	X	X	X	X		

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 10/21/20 1540	Company: GES	Received by: [signature]	Date/Time: 10-21-20 1540	Company: Eurofins
Relinquished by: [signature]	Date/Time: 10-21-20 1700	Company: Eurofins	Received by: [signature]	Date/Time: 10/22/20 1000	Company: ETA
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

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-59608.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Ryan.VanDette@Eurofinset.com	State of Origin: Minnesota	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota		Job #: 480-176967-2
Address: 13715 Rider Trail North,	Due Date Requested: 11/3/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: SKB Rosemount - CCR Groundwater	Project #: 48013709			
Site: Rosemount	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	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)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
D-1D (480-176967-1)	10/20/20	08:40 Central		Water			X	X	2	
D-1S (480-176967-2)	10/20/20	08:20 Central		Water			X	X	2	
D-2D (480-176967-3)	10/20/20	09:50 Central		Water			X	X	2	
D-2S (480-176967-4)	10/20/20	09:35 Central		Water			X	X	2	
D-3D (480-176967-5)	10/20/20	11:10 Central		Water			X	X	2	
D-3S (480-176967-6)	10/20/20	10:50 Central		Water			X	X	2	
D-4D (480-176967-7)	10/20/20	14:00 Central		Water			X	X	2	
D-4S (480-176967-8)	10/20/20	13:45 Central		Water			X	X	2	
D-5D (480-176967-9)	10/20/20	12:30 Central		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	***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) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/23/20 17:00		FedEx		
2	FedEx				10/24/20 09:35	ETASTL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

1/4/2021

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-59608.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Ryan.VanDette@Eurofinset.com	State of Origin: Minnesota	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota		Job #: 480-176967-2
Address: 13715 Rider Trail North,	Due Date Requested: 11/3/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: SKB Rosemount - CCR Groundwater	Project #: 48013709			
Site: Rosemount	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	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)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
D-5S2 (480-176967-10)	10/20/20	12:05 Central		Water			X	X	2	
D-8 (480-176967-11)	10/20/20	10:15 Central		Water			X	X	2	
D-9 (480-176967-12)	10/21/20	11:25 Central		Water			X	X	2	
U-4D (480-176967-13)	10/19/20	12:15 Central		Water			X	X	2	
U-4S (480-176967-14)	10/19/20	11:20 Central		Water			X	X	2	
U-5D (480-176967-15)	10/19/20	14:15 Central		Water			X	X	2	
U-5S (480-176967-16)	10/19/20	13:50 Central		Water			X	X	2	
DUP-1 (480-176967-17)	10/19/20	Central		Water			X	X	2	
DUP-2 (480-176967-18)	10/21/20	Central		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	***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) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/23/20 1700		FedEx		
2	Relinquished by: FedEx	Date/Time:	Company	Received by: [signature]	Date/Time: 10/24/20 08:35	Company ETASTL
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: VanDette, Ryan T	Carrier Tracking No(s):	COC No: 480-59608.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: Ryan.VanDette@Eurofinset.com	State of Origin: Minnesota	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Minnesota		Job #: 480-176967-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/3/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: SKB Rosemount - CCR Groundwater	Project #: 48013709			
Site: Rosemount	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	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)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
FIELD BLANK 1 (480-176967-19)	10/20/20	12:00 Central		Water			X	X	2	
EQUIPMENT BLANK (480-176967-20)	10/20/20	12:05 Central		Water			X	X	2	
D-7 (480-176967-21)	10/21/20	08:20 Central		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:
Empty Kit Relinquished by:	Date: Time: Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	10/23/20 17:00		FedEx		
Relinquished by: FedEx	Date/Time:	Company	Received by:	Date/Time: 10/24/20 08:35	Company ETASTL
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: 480-176967-2

Login Number: 176967
List Number: 1
Creator: Sabuda, Brendan D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8 2.6 2.4 3.3 4.2 3.9 #1 ICE
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	

Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 480-176967-2

Login Number: 176967
List Number: 2
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/24/20 11:01 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
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	

Appendix C – Monitoring Well D-7 Evaluation

Appendix C

Monitoring Well D-7 Evaluation

In 2017, 8 groundwater sampling events were conducted at the SKB Rosemount Landfill for the purpose of collecting CCR background groundwater analytical data. During these background sampling events, monitoring well D-7 was dry and groundwater samples were not collected. Groundwater was present in D-7 during the groundwater sampling events collected from 2018-2020, and therefore, groundwater samples were collected. Because limited background groundwater data has been collected at D-7, D-7 will be evaluated separately from the monitoring wells included in SKB Rosemount Landfill's monitoring network. Additionally, unlike the other monitoring wells at the SKB Rosemount Landfill, D-7 does not have a bladder pump installed in the well for low flow sampling. When groundwater has been present at well D-7, the well has been sampled using a disposable bailer.

2020 Sampling Results

Two groundwater sampling events were conducted at well D-7 on February 10 (1st quarter) and October 21 (fall), 2020. Groundwater samples were analyzed for the following:

- 1st Quarter 2020 – Appendix III and Appendix IV (Total and Dissolved metals - only analytes detected in fall 2019 sampling event)
- Fall 2020 – Appendix III and Appendix IV (full list)

Laboratory analytical results are included in the attached tables. Elevated total metal concentrations were detected during the 2 sampling events (**Table 1 and 2, Appendix C**). These elevated concentrations appear to be associated with the high sediment content as turbidity conditions are high at D-7 during the sampling events (**Table 3, Appendix C**), and cannot be considered representative of the metal concentration at D-7. Dissolved metal concentrations collected at D-7 during the 1st quarter sampling event were significantly lower.

Data from this well cannot be included in an inter-well threshold calculation due to turbidity issues.

Recommendations:

- Install bladder pump in monitoring well D-7 for future low-flow sampling. This sampling methodology will reduce turbidity conditions and allow for more true groundwater conditions.
- Conduct additional sampling for Appendix III and Appendix IV (full list) analytes.
- Additional sampling will allow for a determination of D-7 background groundwater conditions.
- Collect a groundwater sample at D-7 and have the sampling laboratory dry out the sample and then analyze the remaining sediment for Appendix III and Appendix IV analytes.
- Include a discussion of 2021 groundwater sampling results at D-7 in the 2021 CCR Annual Monitoring Report.

Table 1
Appendix C

D-7 Groundwater Analytical Data
Appendix III

Location	Date	Parameter	Result	Units	CAS #
D-7	02/10/2020	Boron	0.12	mg/l	7440-42-8
D-7	10/21/2020	Boron	0.10	mg/l	7440-42-8
D-7	02/10/2020	Calcium	182	mg/l	7440-70-2
D-7	10/21/2020	Calcium	178	mg/l	7440-70-2
D-7	02/10/2020	Chloride	45.4	mg/l	16887-00-6
D-7	10/21/2020	Chloride	66.6	mg/l	16887-00-6
D-7	02/10/2020	Fluoride	0.070	mg/l	16984-48-8
D-7	10/21/2020	Fluoride	0.050	mg/l	16984-48-8
D-7	02/10/2020	pH	7.1	pH UNITS	PH
D-7	10/21/2020	pH	7.0	pH UNITS	PH
D-7	02/10/2020	Sulfate as SO4	69.7	mg/l	14808-79-8
D-7	10/21/2020	Sulfate as SO4	81.1	mg/l	14808-79-8
D-7	02/10/2020	Total Dissolved Solids	413	mg/l	TDS
D-7	10/20/2020	Total Dissolved Solids	562	mg/l	TDS

Results in milligrams per liter (mg/l)

Table 2
Appendix C

D-7 Groundwater Analytical Data
Appendix IV

Location	Date	Parameter	Result	Units	CAS #
D-7	10/21/2020	Antimony - Total	< 0.001	mg/l	7440-36-0
D-7	02/10/2020	Arsenic - Dissolved	< 0.015	mg/l	7440-38-2
D-7	02/10/2020	Arsenic Dissolved	< 0.001	mg/l	7440-38-2
D-7	02/10/2020	Arsenic - Total	0.0283	mg/l	7440-38-2
D-7	10/21/2020	Arsenic - Total	0.0244	mg/l	7440-38-2
D-7	02/10/2020	Barium - Dissolved	0.11	mg/l	7440-39-3
D-7	02/10/2020	Barium - Total	0.56	mg/l	7440-39-3
D-7	10/21/2020	Barium - Total	0.43	mg/l	7440-39-3
D-7	10/21/2020	Beryllium - Total	0.0015	mg/l	7440-41-7
D-7	10/21/2020	Cadmium - Total	0.001	mg/l	7440-43-9
D-7	02/10/2020	Chromium - Total	0.27	mg/l	7440-47-3
D-7	10/21/2020	Chromium - Total	0.20	mg/l	7440-47-3
D-7	02/10/2020	Cobalt - Dissolved	< 0.0003	mg/l	7440-48-4
D-7	02/10/2020	Cobalt - Total	0.082	mg/l	7440-48-4
D-7	10/21/2020	Cobalt - Total	0.0557	mg/l	7440-48-4
D-7	02/10/2020	Fluoride	0.070	mg/l	16984-48-8
D-7	10/21/2020	Fluoride	0.050	mg/l	16984-48-8
D-7	02/10/2020	Lead - Dissolved	< 0.01	mg/l	7439-92-1
D-7	02/10/2020	Lead - Total	0.074	mg/l	7439-92-1
D-7	10/21/2020	Lead - Total	0.053	mg/l	7439-92-1
D-7	10/21/2020	Lithium - Total	< 0.03	mg/l	7439-93-2
D-7	02/10/2020	Mercury - Total	0.00038	mg/l	7439-97-6
D-7	10/21/2020	Mercury - Total	0.00025	mg/l	7439-97-6
D-7	02/10/2020	Molybdenum - Dissolved	< 0.001	mg/l	7439-98-7
D-7	02/10/2020	Molybdenum - Total	0.0036	mg/l	7439-98-7
D-7	10/21/2020	Molybdenum - Total	0.0027	mg/l	7439-98-7
D-7	02/10/2020	Radium (226)	2.06	pci/l	13982-63-3
D-7	10/21/2020	Radium (226)	1.88	pci/l	13982-63-3
D-7	02/10/2020	Radium 228	3.00	pci/l	15262-20-1
D-7	10/21/2020	Radium 228	2.23	pci/l	15262-20-1
D-7	02/10/2020	Total Radium 226/228	5.06	pci/l	425
D-7	10/21/2020	Total Radium 226/228	4.11	pci/l	425
D-7	10/21/2020	Selenium - Total	< 0.0010	mg/l	7782-49-2
D-7	02/10/2020	Thallium - Dissolved	<0.0002	mg/l	7440-28-0
D-7	02/10/2020	Thallium - Total	0.004	mg/l	7440-28-0
D-7	10/21/2020	Thallium - Total	0.0029	mg/l	7440-28-0

Results in milligrams per liter (mg/l) or picocuries per liter (pci/l)

Table 3
Appendix C

D-7 Well Stabilization Data

Well ID	Measurement Date	Purge Rate l/min	Field pH	Field Specific Conductivity umhos/cm	Field Temp deg c	Turbidity NTU
D-7	2/7/20 2:20 PM	1	7.68	1240	9.68	--*
D-7	2/7/20 2:30 PM	1	7.68	1240	9.68	--*
D-7	2/7/20 2:40 PM	1	7.68	1240	9.68	--*
D-7	2/7/20 2:50 PM	1	7.68	1240	9.68	--*
D-7	10/21/20 8:00 AM	1	8.76	1480	7.84	756
D-7	10/21/20 8:05 AM	1	8.77	1480	7.75	762
D-7	10/21/20 8:10 AM	1	8.78	1490	7.51	776
D-7	10/21/20 8:15 AM	1	8.79	1490	7.44	782

--* = Turbidity was not measured

Appendix D – Statistical Evaluation Data

1			Background Statistics for Uncensored Full Data Sets								
2	User Selected Options										
3	Date/Time of Computation		ProUCL 5.11/7/2021 3:33:15 PM								
4	From File		C:\Users\bjanowiak\Documents\My EQuIS Work\GES\SKB - Rosemount Facility\Rosemount common AP								
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	Fluoride										
12											
13	General Statistics										
14				Total Number of Observations	224			Number of Distinct Observations	20		
15				Minimum	0.05			First Quartile	0.1		
16				Second Largest	0.25			Median	0.1		
17				Maximum	0.25			Third Quartile	0.25		
18				Mean	0.144			SD	0.0725		
19				Coefficient of Variation	0.503			Skewness	0.684		
20				Mean of logged Data	-2.056			SD of logged Data	0.483		
21											
22						Critical Values for Background Threshold Values (BTVs)						
23				Tolerance Factor K (For UTL)	1.824			d2max (for USL)	3.467		
24											
25						Normal GOF Test					
26				Shapiro Wilk Test Statistic	0.703			Normal GOF Test			
27				5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level			
28				Lilliefors Test Statistic	0.32			Lilliefors GOF Test			
29				5% Lilliefors Critical Value	0.0596			Data Not Normal at 5% Significance Level			
30						Data Not Normal at 5% Significance Level					
31											
32						Background Statistics Assuming Normal Distribution					
33			95% UTL with	95% Coverage	0.276			90% Percentile (z)	0.237		
34				95% UPL (t)	0.264			95% Percentile (z)	0.263		
35				95% USL	0.396			99% Percentile (z)	0.313		
36											
37						Gamma GOF Test					
38				A-D Test Statistic	24.65			Anderson-Darling Gamma GOF Test			
39				5% A-D Critical Value	0.757			Data Not Gamma Distributed at 5% Significance Level			
40				K-S Test Statistic	0.295			Kolmogorov-Smirnov Gamma GOF Test			
41				5% K-S Critical Value	0.0611			Data Not Gamma Distributed at 5% Significance Level			
42						Data Not Gamma Distributed at 5% Significance Level					
43											
44						Gamma Statistics					
45				k hat (MLE)	4.353			k star (bias corrected MLE)	4.297		
46				Theta hat (MLE)	0.0331			Theta star (bias corrected MLE)	0.0335		
47				nu hat (MLE)	1950			nu star (bias corrected)	1925		
48				MLE Mean (bias corrected)	0.144			MLE Sd (bias corrected)	0.0695		
49											
50						Background Statistics Assuming Gamma Distribution					
51			95% Wilson Hilferty (WH) Approx. Gamma UPL		0.274			90% Percentile	0.237		
52			95% Hawkins Wixley (HW) Approx. Gamma UPL		0.277			95% Percentile	0.274		
53			95% WH Approx. Gamma UTL with	95% Coverage	0.293			99% Percentile	0.353		

54				95% HW Approx. Gamma UTL with	95% Coverage	0.296					
55					95% WH USL	0.516				95% HW USL	0.545
56											
57					Lognormal GOF Test						
58					Shapiro Wilk Test Statistic	0.781		Shapiro Wilk Lognormal GOF Test			
59					5% Shapiro Wilk P Value	0		Data Not Lognormal at 5% Significance Level			
60					Lilliefors Test Statistic	0.28		Lilliefors Lognormal GOF Test			
61					5% Lilliefors Critical Value	0.0596		Data Not Lognormal at 5% Significance Level			
62					Data Not Lognormal at 5% Significance Level						
63											
64					Background Statistics assuming Lognormal Distribution						
65				95% UTL with	95% Coverage	0.309				90% Percentile (z)	0.238
66					95% UPL (t)	0.285				95% Percentile (z)	0.283
67					95% USL	0.684				99% Percentile (z)	0.394
68											
69					Nonparametric Distribution Free Background Statistics						
70					Data do not follow a Discernible Distribution (0.05)						
71											
72					Nonparametric Upper Limits for Background Threshold Values						
73					Order of Statistic, r	217				95% UTL with 95% Coverage	0.25
74					Approx, f used to compute achieved CC	1.428				pproximate Actual Confidence Coefficient achieved by UTL	0.876
75										Approximate Sample Size needed to achieve specified CC	260
76				95% Percentile Bootstrap UTL with	95% Coverage	0.25				95% BCA Bootstrap UTL with 95% Coverage	0.25
77					95% UPL	0.25				90% Percentile	0.25
78					90% Chebyshev UPL	0.362				95% Percentile	0.25
79					95% Chebyshev UPL	0.461				99% Percentile	0.25
80					95% USL	0.25					
81											
82					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.						
83					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers						
84					and consists of observations collected from clean unimpacted locations.						
85					The use of USL tends to provide a balance between false positives and false negatives provided the data						
86					represents a background data set and when many onsite observations need to be compared with the BTV.						
87											
88	Lead			Reporting limit is the BTV							
89											
90	General Statistics										
91					Total Number of Observations	173				Number of Distinct Observations	1
92					Minimum	0.01				First Quartile	0.01
93					Second Largest	0.01				Median	0.01
94					Maximum	0.01				Third Quartile	0.01
95					Mean	0.01				SD	6.959E-18
96					Coefficient of Variation	6.959E-16				Skewness	-1.009
97											
98					Warning: There is only one distinct observation value in this data set - resulting in '0' variance!						
99					ProUCL (or any other software) should not be used on such a data set!						
100					The data set for variable Lead was not processed!						
101											
102					If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.						
103					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
104											
105											
106	Lithium										

107											
108	General Statistics										
109					Total Number of Observations	173			Number of Distinct Observations	1	
110					Minimum	0.03			First Quartile	0.03	
111					Second Largest	0.03			Median	0.03	
112					Maximum	0.03			Third Quartile	0.03	
113					Mean	0.03			SD	6.959E-18	
114					Coefficient of Variation	2.320E-16			Skewness	1.009	
115											
116					Warning: There is only one distinct observation value in this data set - resulting in '0' variance!						
117					ProUCL (or any other software) should not be used on such a data set!						
118					The data set for variable Lithium was not processed!						
119											
120					If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.						
121					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
122											
123											
124	Mercury	Reporting limit is the BTV									
125											
126	General Statistics										
127					Total Number of Observations	172			Number of Distinct Observations	1	
128					Minimum	2.0000E-4			First Quartile	2.0000E-4	
129					Second Largest	2.0000E-4			Median	2.0000E-4	
130					Maximum	2.0000E-4			Third Quartile	2.0000E-4	
131					Mean	2.0000E-4			SD	5.709E-19	
132					Coefficient of Variation	2.854E-15			Skewness	1.009	
133											
134					Warning: There is only one distinct observation value in this data set - resulting in '0' variance!						
135					ProUCL (or any other software) should not be used on such a data set!						
136					The data set for variable Mercury was not processed!						
137											
138					If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.						
139					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
140											
141											
142	MOLYBDENUM	Reporting limit is the BTV									
143											
144	General Statistics										
145					Total Number of Observations	173			Number of Distinct Observations	1	
146					Minimum	0.001			First Quartile	0.001	
147					Second Largest	0.001			Median	0.001	
148					Maximum	0.001			Third Quartile	0.001	
149					Mean	0.001			SD	6.524E-19	
150					Coefficient of Variation	6.524E-16			Skewness	-1.009	
151											
152					Warning: There is only one distinct observation value in this data set - resulting in '0' variance!						
153					ProUCL (or any other software) should not be used on such a data set!						
154					The data set for variable MOLYBDENUM was not processed!						
155											
156					If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.						
157					The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).						
158											
159											

	A	B	C	D	E	F	G	H	I	J	K	L
160	Radium (226)											
161												
162	General Statistics											
163					Total Number of Observations	129			Number of Distinct Observations	103		
164									Number of Missing Observations	36		
165					Minimum	0.0616			First Quartile	0.0879		
166					Second Largest	0.368			Median	0.116		
167					Maximum	0.372			Third Quartile	0.152		
168					Mean	0.145			SD	0.0807		
169					Coefficient of Variation	0.556			Skewness	1.334		
170					Mean of logged Data	-2.055			SD of logged Data	0.479		
171												
172					Critical Values for Background Threshold Values (BTVs)							
173					Tolerance Factor K (For UTL)	1.887			d2max (for USL)	3.294		
174												
175					Normal GOF Test							
176					Shapiro Wilk Test Statistic	0.788			Normal GOF Test			
177					5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level			
178					Lilliefors Test Statistic	0.224			Lilliefors GOF Test			
179					5% Lilliefors Critical Value	0.0784			Data Not Normal at 5% Significance Level			
180					Data Not Normal at 5% Significance Level							
181												
182					Background Statistics Assuming Normal Distribution							
183				95% UTL with	95% Coverage	0.297			90% Percentile (z)	0.249		
184					95% UPL (t)	0.279			95% Percentile (z)	0.278		
185					95% USL	0.411			99% Percentile (z)	0.333		
186												
187					Gamma GOF Test							
188					A-D Test Statistic	5.712			Anderson-Darling Gamma GOF Test			
189					5% A-D Critical Value	0.756			Data Not Gamma Distributed at 5% Significance Level			
190					K-S Test Statistic	0.17			Kolmogorov-Smirnov Gamma GOF Test			
191					5% K-S Critical Value	0.0822			Data Not Gamma Distributed at 5% Significance Level			
192					Data Not Gamma Distributed at 5% Significance Level							
193												
194					Gamma Statistics							
195					k hat (MLE)	4.16			k star (bias corrected MLE)	4.068		
196					Theta hat (MLE)	0.0349			Theta star (bias corrected MLE)	0.0357		
197					nu hat (MLE)	1073			nu star (bias corrected)	1050		
198					MLE Mean (bias corrected)	0.145			MLE Sd (bias corrected)	0.072		
199												
200					Background Statistics Assuming Gamma Distribution							
201					95% Wilson Hilferty (WH) Approx. Gamma UPL	0.28			90% Percentile	0.242		
202					95% Hawkins Wixley (HW) Approx. Gamma UPL	0.281			95% Percentile	0.28		
203				95% WH Approx. Gamma UTL with	95% Coverage	0.306			99% Percentile	0.362		
204				95% HW Approx. Gamma UTL with	95% Coverage	0.308						
205					95% WH USL	0.503			95% HW USL	0.524		
206												
207					Lognormal GOF Test							
208					Shapiro Wilk Test Statistic	0.894			Shapiro Wilk Lognormal GOF Test			
209					5% Shapiro Wilk P Value	2.668E-13			Data Not Lognormal at 5% Significance Level			
210					Lilliefors Test Statistic	0.137			Lilliefors Lognormal GOF Test			
211					5% Lilliefors Critical Value	0.0784			Data Not Lognormal at 5% Significance Level			
212					Data Not Lognormal at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214					Background Statistics assuming Lognormal Distribution							
215				95% UTL with	95% Coverage	0.317				90% Percentile (z)		0.237
216					95% UPL (t)	0.284				95% Percentile (z)		0.282
217					95% USL	0.622				99% Percentile (z)		0.391
218												
219					Nonparametric Distribution Free Background Statistics							
220					Data do not follow a Discernible Distribution (0.05)							
221												
222					Nonparametric Upper Limits for Background Threshold Values							
223					Order of Statistic, r	126				95% UTL with	95% Coverage	0.345
224					Approx, f used to compute achieved CC	1.658				pproximate Actual Confidence Coefficient achieved by UTL		0.891
225										Approximate Sample Size needed to achieve specified CC		153
226				95% Percentile Bootstrap UTL with	95% Coverage	0.344				95% BCA Bootstrap UTL with	95% Coverage	0.345
227					95% UPL	0.32				90% Percentile		0.286
228					90% Chebyshev UPL	0.388				95% Percentile		0.306
229					95% Chebyshev UPL	0.498				99% Percentile		0.366
230					95% USL	0.372						
231												
232					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
233					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
234					and consists of observations collected from clean unimpacted locations.							
235					The use of USL tends to provide a balance between false positives and false negatives provided the data							
236					represents a background data set and when many onsite observations need to be compared with the BTV.							
237												
238	Radium 228											
239												
240	General Statistics											
241					Total Number of Observations	136				Number of Distinct Observations		108
242										Number of Missing Observations		36
243					Minimum	0.263				First Quartile		0.362
244					Second Largest	1.23				Median		0.429
245					Maximum	1.3				Third Quartile		0.629
246					Mean	0.527				SD		0.242
247					Coefficient of Variation	0.459				Skewness		1.301
248					Mean of logged Data	-0.727				SD of logged Data		0.402
249												
250					Critical Values for Background Threshold Values (BTVs)							
251					Tolerance Factor K (For UTL)	1.88				d2max (for USL)		3.311
252												
253					Normal GOF Test							
254					Shapiro Wilk Test Statistic	0.81				Normal GOF Test		
255					5% Shapiro Wilk P Value	0				Data Not Normal at 5% Significance Level		
256					Lilliefors Test Statistic	0.209				Lilliefors GOF Test		
257					5% Lilliefors Critical Value	0.0763				Data Not Normal at 5% Significance Level		
258					Data Not Normal at 5% Significance Level							
259												
260					Background Statistics Assuming Normal Distribution							
261				95% UTL with	95% Coverage	0.983				90% Percentile (z)		0.838
262					95% UPL (t)	0.93				95% Percentile (z)		0.926
263					95% USL	1.33				99% Percentile (z)		1.091
264												
265					Gamma GOF Test							

266				A-D Test Statistic	5.566	Anderson-Darling Gamma GOF Test					
267				5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level					
268				K-S Test Statistic	0.16	Kolmogorov-Smirnov Gamma GOF Test					
269				5% K-S Critical Value	0.0803	Data Not Gamma Distributed at 5% Significance Level					
270				Data Not Gamma Distributed at 5% Significance Level							
271											
272				Gamma Statistics							
273				k hat (MLE)	5.896	k star (bias corrected MLE)	5.771				
274				Theta hat (MLE)	0.0895	Theta star (bias corrected MLE)	0.0914				
275				nu hat (MLE)	1604	nu star (bias corrected)	1570				
276				MLE Mean (bias corrected)	0.527	MLE Sd (bias corrected)	0.22				
277											
278				Background Statistics Assuming Gamma Distribution							
279				95% Wilson Hilferty (WH) Approx. Gamma UPL	0.933	90% Percentile	0.821				
280				95% Hawkins Wixley (HW) Approx. Gamma UPL	0.935	95% Percentile	0.933				
281				95% WH Approx. Gamma UTL with 95% Coverage	1.004	99% Percentile	1.167				
282				95% HW Approx. Gamma UTL with 95% Coverage	1.01						
283				95% WH USL	1.565	95% HW USL	1.616				
284											
285				Lognormal GOF Test							
286				Shapiro Wilk Test Statistic	0.9	Shapiro Wilk Lognormal GOF Test					
287				5% Shapiro Wilk P Value	3.826E-13	Data Not Lognormal at 5% Significance Level					
288				Lilliefors Test Statistic	0.13	Lilliefors Lognormal GOF Test					
289				5% Lilliefors Critical Value	0.0763	Data Not Lognormal at 5% Significance Level					
290				Data Not Lognormal at 5% Significance Level							
291											
292				Background Statistics assuming Lognormal Distribution							
293				95% UTL with 95% Coverage	1.03	90% Percentile (z)	0.81				
294				95% UPL (t)	0.943	95% Percentile (z)	0.937				
295				95% USL	1.832	99% Percentile (z)	1.232				
296											
297				Nonparametric Distribution Free Background Statistics							
298				Data do not follow a Discernible Distribution (0.05)							
299											
300				Nonparametric Upper Limits for Background Threshold Values							
301				Order of Statistic, r	133	95% UTL with 95% Coverage	1				
302				Approx, f used to compute achieved CC	1.75	pproximate Actual Confidence Coefficient achieved by UTL	0.913				
303						Approximate Sample Size needed to achieve specified CC	153				
304				95% Percentile Bootstrap UTL with 95% Coverage	1	95% BCA Bootstrap UTL with 95% Coverage	0.873				
305				95% UPL	1	90% Percentile	1				
306				90% Chebyshev UPL	1.257	95% Percentile	1				
307				95% Chebyshev UPL	1.588	99% Percentile	1.206				
308				95% USL	1.3						
309											
310				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
311				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
312				and consists of observations collected from clean unimpacted locations.							
313				The use of USL tends to provide a balance between false positives and false negatives provided the data							
314				represents a background data set and when many onsite observations need to be compared with the BTV.							
315											
316	Selenium										
317											
318	General Statistics										

319	Total Number of Observations				171	Number of Distinct Observations					6
320	Minimum				0.001	First Quartile					0.001
321	Second Largest				0.0015	Median					0.001
322	Maximum				0.0017	Third Quartile					0.001
323	Mean				0.00102	SD					9.1428E-5
324	Coefficient of Variation				0.0894	Skewness					5.091
325	Mean of logged Data				-6.888	SD of logged Data					0.0745
326											
327	Critical Values for Background Threshold Values (BTVs)										
328	Tolerance Factor K (For UTL)				1.853	d2max (for USL)					3.384
329											
330	Normal GOF Test										
331	Shapiro Wilk Test Statistic				0.293	Normal GOF Test					
332	5% Shapiro Wilk P Value				0	Data Not Normal at 5% Significance Level					
333	Lilliefors Test Statistic				0.505	Lilliefors GOF Test					
334	5% Lilliefors Critical Value				0.0682	Data Not Normal at 5% Significance Level					
335	Data Not Normal at 5% Significance Level										
336											
337	Background Statistics Assuming Normal Distribution										
338	95% UTL with	95% Coverage			0.00119	90% Percentile (z)					0.00114
339	95% UPL (t)				0.00117	95% Percentile (z)					0.00117
340	95% USL				0.00133	99% Percentile (z)					0.00124
341											
342	Gamma GOF Test										
343	A-D Test Statistic				52.21	Anderson-Darling Gamma GOF Test					
344	5% A-D Critical Value				0.75	Data Not Gamma Distributed at 5% Significance Level					
345	K-S Test Statistic				0.508	Kolmogorov-Smirnov Gamma GOF Test					
346	5% K-S Critical Value				0.0709	Data Not Gamma Distributed at 5% Significance Level					
347	Data Not Gamma Distributed at 5% Significance Level										
348											
349	Gamma Statistics										
350	k hat (MLE)				160.8	k star (bias corrected MLE)					158
351	Theta hat (MLE)				6.3604E-6	Theta star (bias corrected MLE)					6.4739E-6
352	nu hat (MLE)				54996	nu star (bias corrected)					54033
353	MLE Mean (bias corrected)				0.00102	MLE Sd (bias corrected)					8.1373E-5
354											
355	Background Statistics Assuming Gamma Distribution										
356	95% Wilson Hilferty (WH) Approx. Gamma UPL				0.00116	90% Percentile					0.00113
357	95% Hawkins Wixley (HW) Approx. Gamma UPL				0.00116	95% Percentile					0.00116
358	95% WH Approx. Gamma UTL with	95% Coverage			0.00118	99% Percentile					0.00122
359	95% HW Approx. Gamma UTL with	95% Coverage			0.00118						
360	95% WH USL				0.00132	95% HW USL					0.00132
361											
362	Lognormal GOF Test										
363	Shapiro Wilk Test Statistic				0.306	Shapiro Wilk Lognormal GOF Test					
364	5% Shapiro Wilk P Value				0	Data Not Lognormal at 5% Significance Level					
365	Lilliefors Test Statistic				0.509	Lilliefors Lognormal GOF Test					
366	5% Lilliefors Critical Value				0.0682	Data Not Lognormal at 5% Significance Level					
367	Data Not Lognormal at 5% Significance Level										
368											
369	Background Statistics assuming Lognormal Distribution										
370	95% UTL with	95% Coverage			0.00117	90% Percentile (z)					0.00112
371	95% UPL (t)				0.00115	95% Percentile (z)					0.00115

372				95% USL	0.00131			99% Percentile (z)		0.00121	
373											
374	Nonparametric Distribution Free Background Statistics										
375	Data do not follow a Discernible Distribution (0.05)										
376											
377	Nonparametric Upper Limits for Background Threshold Values										
378				Order of Statistic, r	166			95% UTL with 95% Coverage		0.0012	
379				Approx, f used to compute achieved CC	1.456			pproximate Actual Confidence Coefficient achieved by UTL		0.861	
380								Approximate Sample Size needed to achieve specified CC		208	
381			95% Percentile Bootstrap UTL with 95% Coverage		0.0013			95% BCA Bootstrap UTL with 95% Coverage		0.00105	
382				95% UPL	0.00114			90% Percentile		0.001	
383				90% Chebyshev UPL	0.0013			95% Percentile		0.0011	
384				95% Chebyshev UPL	0.00142			99% Percentile		0.0015	
385				95% USL	0.0017						
386											
387	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
388	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
389	and consists of observations collected from clean unimpacted locations.										
390	The use of USL tends to provide a balance between false positives and false negatives provided the data										
391	represents a background data set and when many onsite observations need to be compared with the BTV.										
392											
393	Sulfate as SO4										
394											
395	General Statistics										
396				Total Number of Observations	376			Number of Distinct Observations		209	
397								Number of Missing Observations		1	
398				Minimum	2			First Quartile		26.38	
399				Second Largest	67			Median		29.3	
400				Maximum	67.3			Third Quartile		35.25	
401				Mean	31.72			SD		9.964	
402				Coefficient of Variation	0.314			Skewness		0.773	
403				Mean of logged Data	3.402			SD of logged Data		0.364	
404											
405	Critical Values for Background Threshold Values (BTVs)										
406				Tolerance Factor K (For UTL)	1.781			d2max (for USL)		3.617	
407											
408	Normal GOF Test										
409				Shapiro Wilk Test Statistic	0.93			Normal GOF Test			
410				5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level			
411				Lilliefors Test Statistic	0.135			Lilliefors GOF Test			
412				5% Lilliefors Critical Value	0.0461			Data Not Normal at 5% Significance Level			
413	Data Not Normal at 5% Significance Level										
414											
415	Background Statistics Assuming Normal Distribution										
416				95% UTL with 95% Coverage	49.47			90% Percentile (z)		44.48	
417				95% UPL (t)	48.17			95% Percentile (z)		48.1	
418				95% USL	67.75			99% Percentile (z)		54.89	
419											
420	Gamma GOF Test										
421				A-D Test Statistic	7.365			Anderson-Darling Gamma GOF Test			
422				5% A-D Critical Value	0.755			Data Not Gamma Distributed at 5% Significance Level			
423				K-S Test Statistic	0.107			Kolmogorov-Smirnov Gamma GOF Test			
424				5% K-S Critical Value	0.0469			Data Not Gamma Distributed at 5% Significance Level			

425	Data Not Gamma Distributed at 5% Significance Level										
426											
427	Gamma Statistics										
428					k hat (MLE)	9.212			k star (bias corrected MLE)	9.141	
429					Theta hat (MLE)	3.443			Theta star (bias corrected MLE)	3.47	
430					nu hat (MLE)	6928			nu star (bias corrected)	6874	
431					MLE Mean (bias corrected)	31.72			MLE Sd (bias corrected)	10.49	
432											
433	Background Statistics Assuming Gamma Distribution										
434					95% Wilson Hilferty (WH) Approx. Gamma UPL	50.6			90% Percentile	45.68	
435					95% Hawkins Wixley (HW) Approx. Gamma UPL	51.31			95% Percentile	50.71	
436					95% WH Approx. Gamma UTL with 95% Coverage	52.47			99% Percentile	61.06	
437					95% HW Approx. Gamma UTL with 95% Coverage	53.31					
438					95% WH USL	83.87			95% HW USL	88.28	
439											
440	Lognormal GOF Test										
441					Shapiro Wilk Test Statistic	0.856			Shapiro Wilk Lognormal GOF Test		
442					5% Shapiro Wilk P Value	0			Data Not Lognormal at 5% Significance Level		
443					Lilliefors Test Statistic	0.134			Lilliefors Lognormal GOF Test		
444					5% Lilliefors Critical Value	0.0461			Data Not Lognormal at 5% Significance Level		
445	Data Not Lognormal at 5% Significance Level										
446											
447	Background Statistics assuming Lognormal Distribution										
448					95% UTL with 95% Coverage	57.36			90% Percentile (z)	47.83	
449					95% UPL (t)	54.71			95% Percentile (z)	54.59	
450					95% USL	111.8			99% Percentile (z)	69.94	
451											
452	Nonparametric Distribution Free Background Statistics										
453	Data do not follow a Discernible Distribution (0.05)										
454											
455	Nonparametric Upper Limits for Background Threshold Values										
456					Order of Statistic, r	363			95% UTL with 95% Coverage	53.8	
457					Approx, f used to compute achieved CC	1.365			pproximate Actual Confidence Coefficient achieved by UTL	0.9	
458									Approximate Sample Size needed to achieve specified CC	410	
459					95% Percentile Bootstrap UTL with 95% Coverage	54			95% BCA Bootstrap UTL with 95% Coverage	54.03	
460					95% UPL	52.06			90% Percentile	46.55	
461					90% Chebyshev UPL	61.65			95% Percentile	51.78	
462					95% Chebyshev UPL	75.2			99% Percentile	60.28	
463					95% USL	67.3					
464											
465	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
466	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
467	and consists of observations collected from clean unimpacted locations.										
468	The use of USL tends to provide a balance between false positives and false negatives provided the data										
469	represents a background data set and when many onsite observations need to be compared with the BTV.										
470											
471	Thallium Reporting limit is the BTV										
472											
473	General Statistics										
474					Total Number of Observations	173			Number of Distinct Observations	1	
475					Minimum	2.0000E-4			First Quartile	2.0000E-4	
476					Second Largest	2.0000E-4			Median	2.0000E-4	
477					Maximum	2.0000E-4			Third Quartile	2.0000E-4	

478				Mean	2.0000E-4				SD	5.709E-19	
479				Coefficient of Variation	2.854E-15				Skewness	1.009	
480											
481	Warning: There is only one distinct observation value in this data set - resulting in '0' variance!										
482	ProUCL (or any other software) should not be used on such a data set!										
483	The data set for variable Thallium was not processed!										
484											
485	If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.										
486	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).										
487											
488											
489	Total Dissolved Solids										
490											
491	General Statistics										
492				Total Number of Observations	391				Number of Distinct Observations	174	
493									Number of Missing Observations	1	
494				Minimum	127				First Quartile	397	
495				Second Largest	705				Median	429	
496				Maximum	711				Third Quartile	469	
497				Mean	438				SD	69.02	
498				Coefficient of Variation	0.158				Skewness	0.596	
499				Mean of logged Data	6.07				SD of logged Data	0.162	
500											
501	Critical Values for Background Threshold Values (BTVs)										
502				Tolerance Factor K (For UTL)	1.779				d2max (for USL)	3.628	
503											
504	Normal GOF Test										
505				Shapiro Wilk Test Statistic	0.959				Normal GOF Test		
506				5% Shapiro Wilk P Value	1.4944E-9				Data Not Normal at 5% Significance Level		
507				Lilliefors Test Statistic	0.104				Lilliefors GOF Test		
508				5% Lilliefors Critical Value	0.0452				Data Not Normal at 5% Significance Level		
509	Data Not Normal at 5% Significance Level										
510											
511	Background Statistics Assuming Normal Distribution										
512				95% UTL with 95% Coverage	560.8				90% Percentile (z)	526.5	
513				95% UPL (t)	552				95% Percentile (z)	551.5	
514				95% USL	688.4				99% Percentile (z)	598.6	
515											
516	Gamma GOF Test										
517				A-D Test Statistic	3.81				Anderson-Darling Gamma GOF Test		
518				5% A-D Critical Value	0.752				Data Not Gamma Distributed at 5% Significance Level		
519				K-S Test Statistic	0.084				Kolmogorov-Smirnov Gamma GOF Test		
520				5% K-S Critical Value	0.0457				Data Not Gamma Distributed at 5% Significance Level		
521	Data Not Gamma Distributed at 5% Significance Level										
522											
523	Gamma Statistics										
524				k hat (MLE)	39.9				k star (bias corrected MLE)	39.6	
525				Theta hat (MLE)	10.98				Theta star (bias corrected MLE)	11.06	
526				nu hat (MLE)	31202				nu star (bias corrected)	30963	
527				MLE Mean (bias corrected)	438				MLE Sd (bias corrected)	69.61	
528											
529	Background Statistics Assuming Gamma Distribution										
530				95% Wilson Hilferty (WH) Approx. Gamma UPL	558.4				90% Percentile	529.2	

531				95% Hawkins Wixley (HW) Approx. Gamma UPL		559.8					95% Percentile	558.4
532				95% WH Approx. Gamma UTL with 95% Coverage		568.9					99% Percentile	616
533				95% HW Approx. Gamma UTL with 95% Coverage		570.5						
534					95% WH USL	735.6					95% HW USL	744.4
535												
536					Lognormal GOF Test							
537					Shapiro Wilk Test Statistic	0.951			Shapiro Wilk Lognormal GOF Test			
538					5% Shapiro Wilk P Value	8.660E-15			Data Not Lognormal at 5% Significance Level			
539					Lilliefors Test Statistic	0.0808			Lilliefors Lognormal GOF Test			
540					5% Lilliefors Critical Value	0.0452			Data Not Lognormal at 5% Significance Level			
541					Data Not Lognormal at 5% Significance Level							
542												
543					Background Statistics assuming Lognormal Distribution							
544				95% UTL with 95% Coverage		576.6					90% Percentile (z)	532.1
545					95% UPL (t)	564.8					95% Percentile (z)	564.3
546					95% USL	777.5					99% Percentile (z)	630
547												
548					Nonparametric Distribution Free Background Statistics							
549					Data do not follow a Discernible Distribution (0.05)							
550												
551					Nonparametric Upper Limits for Background Threshold Values							
552					Order of Statistic, r	378			95% UTL with 95% Coverage			580
553					Approx, f used to compute achieved CC	1.421			pproximate Actual Confidence Coefficient achieved by UTL			0.926
554									Approximate Sample Size needed to achieve specified CC			410
555				95% Percentile Bootstrap UTL with 95% Coverage		578			95% BCA Bootstrap UTL with 95% Coverage			578
556					95% UPL	561.2					90% Percentile	525
557					90% Chebyshev UPL	645.3					95% Percentile	557
558					95% Chebyshev UPL	739.2					99% Percentile	664.1
559					95% USL	711						
560												
561				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.								
562				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers								
563				and consists of observations collected from clean unimpacted locations.								
564				The use of USL tends to provide a balance between false positives and false negatives provided the data								
565				represents a background data set and when many onsite observations need to be compared with the BTV.								
566												

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2		User Selected Options										
3		Date/Time of Computation		ProUCL 5.11/7/2021 3:08:59 PM								
4		From File		C:\Users\bjanowiak\Documents\My EQuIS Work\GES\SKB - Rosemount Facility\Rosemount common AP								
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	Antimony	Reporting limit is the BTV										
12												
13	General Statistics											
14				Total Number of Observations		173				Number of Distinct Observations		1
15				Minimum		0.001				First Quartile		0.001
16				Second Largest		0.001				Median		0.001
17				Maximum		0.001				Third Quartile		0.001
18				Mean		0.001				SD		6.524E-19
19				Coefficient of Variation		6.524E-16				Skewness		-1.009
20												
21				Warning: There is only one distinct observation value in this data set - resulting in '0' variance!								
22				ProUCL (or any other software) should not be used on such a data set!								
23				The data set for variable Antimony was not processed!								
24												
25				If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.								
26				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
27												
28												
29	Arsenic	Reporting limit is the BTV										
30												
31	General Statistics											
32				Total Number of Observations		172				Number of Distinct Observations		1
33				Minimum		0.001				First Quartile		0.001
34				Second Largest		0.001				Median		0.001
35				Maximum		0.001				Third Quartile		0.001
36				Mean		0.001				SD		6.524E-19
37				Coefficient of Variation		6.524E-16				Skewness		-1.009
38												
39				Warning: There is only one distinct observation value in this data set - resulting in '0' variance!								
40				ProUCL (or any other software) should not be used on such a data set!								
41				The data set for variable Arsenic was not processed!								
42												
43				If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.								
44				The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).								
45												
46												
47	Barium											
48												
49	General Statistics											
50				Total Number of Observations		188				Number of Distinct Observations		44
51				Minimum		0.032				First Quartile		0.05
52				Second Largest		0.085				Median		0.054
53				Maximum		0.088				Third Quartile		0.062

54				Mean	0.0564				SD	0.00975	
55				Coefficient of Variation	0.173				Skewness	0.532	
56				Mean of logged Data	-2.89				SD of logged Data	0.172	
57											
58				Critical Values for Background Threshold Values (BTVs)							
59				Tolerance Factor K (For UTL)	1.842				d2max (for USL)	3.413	
60											
61				Normal GOF Test							
62				Shapiro Wilk Test Statistic	0.968	Normal GOF Test					
63				5% Shapiro Wilk P Value	0.0128	Data Not Normal at 5% Significance Level					
64				Lilliefors Test Statistic	0.101	Lilliefors GOF Test					
65				5% Lilliefors Critical Value	0.065	Data Not Normal at 5% Significance Level					
66				Data Not Normal at 5% Significance Level							
67											
68				Background Statistics Assuming Normal Distribution							
69			95% UTL with	95% Coverage	0.0743				90% Percentile (z)	0.0689	
70				95% UPL (t)	0.0725				95% Percentile (z)	0.0724	
71				95% USL	0.0897				99% Percentile (z)	0.0791	
72											
73				Gamma GOF Test							
74				A-D Test Statistic	0.994	Anderson-Darling Gamma GOF Test					
75				5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level					
76				K-S Test Statistic	0.0818	Kolmogorov-Smirnov Gamma GOF Test					
77				5% K-S Critical Value	0.0666	Data Not Gamma Distributed at 5% Significance Level					
78				Data Not Gamma Distributed at 5% Significance Level							
79											
80				Gamma Statistics							
81				k hat (MLE)	34.3				k star (bias corrected MLE)	33.76	
82				Theta hat (MLE)	0.00164				Theta star (bias corrected MLE)	0.00167	
83				nu hat (MLE)	12897				nu star (bias corrected)	12692	
84				MLE Mean (bias corrected)	0.0564				MLE Sd (bias corrected)	0.0097	
85											
86				Background Statistics Assuming Gamma Distribution							
87			95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0733				90% Percentile	0.0691	
88			95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0734				95% Percentile	0.0732	
89			95% WH Approx. Gamma UTL with	95% Coverage	0.0754				99% Percentile	0.0814	
90			95% HW Approx. Gamma UTL with	95% Coverage	0.0756						
91				95% WH USL	0.0954				95% HW USL	0.0963	
92											
93				Lognormal GOF Test							
94				Shapiro Wilk Test Statistic	0.984	Shapiro Wilk Lognormal GOF Test					
95				5% Shapiro Wilk P Value	0.594	Data appear Lognormal at 5% Significance Level					
96				Lilliefors Test Statistic	0.0709	Lilliefors Lognormal GOF Test					
97				5% Lilliefors Critical Value	0.065	Data Not Lognormal at 5% Significance Level					
98				Data appear Approximate Lognormal at 5% Significance Level							
99											
100				Background Statistics assuming Lognormal Distribution							
101			95% UTL with	95% Coverage	0.0762				90% Percentile (z)	0.0692	
102				95% UPL (t)	0.0738				95% Percentile (z)	0.0737	
103				95% USL	0.0998				99% Percentile (z)	0.0828	
104											
105				Nonparametric Distribution Free Background Statistics							
106				Data appear Approximate Lognormal at 5% Significance Level							

107											
108	Nonparametric Upper Limits for Background Threshold Values										
109				Order of Statistic, r		183			95% UTL with	95% Coverage	0.077
110				Approx, f used to compute achieved CC		1.605		pproximate Actual Confidence Coefficient achieved by UTL			0.912
111								Approximate Sample Size needed to achieve specified CC			208
112			95% Percentile Bootstrap UTL with	95% Coverage		0.0767		95% BCA Bootstrap UTL with	95% Coverage		0.0763
113				95% UPL		0.0741			90% Percentile		0.07
114				90% Chebyshev UPL		0.0857			95% Percentile		0.0727
115				95% Chebyshev UPL		0.099			99% Percentile		0.0824
116				95% USL		0.088					
117											
118	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
119	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
120	and consists of observations collected from clean unimpacted locations.										
121	The use of USL tends to provide a balance between false positives and false negatives provided the data										
122	represents a background data set and when many onsite observations need to be compared with the BTV.										
123											
124	Beryllium	Reporting limit is the BTV									
125											
126	General Statistics										
127				Total Number of Observations		173			Number of Distinct Observations		1
128				Minimum		7.0000E-4			First Quartile		7.0000E-4
129				Second Largest		7.0000E-4			Median		7.0000E-4
130				Maximum		7.0000E-4			Third Quartile		7.0000E-4
131				Mean		7.0000E-4			SD		2.610E-18
132				Coefficient of Variation		3.728E-15			Skewness		-1.009
133											
134	Warning: There is only one distinct observation value in this data set - resulting in '0' variance!										
135	ProUCL (or any other software) should not be used on such a data set!										
136	The data set for variable Beryllium was not processed!										
137											
138	If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.										
139	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).										
140											
141											
142	Boron										
143											
144	General Statistics										
145				Total Number of Observations		224			Number of Distinct Observations		45
146				Minimum		0.02			First Quartile		0.02
147				Second Largest		0.45			Median		0.02
148				Maximum		0.46			Third Quartile		0.027
149				Mean		0.04			SD		0.0651
150				Coefficient of Variation		1.63			Skewness		4.853
151				Mean of logged Data		-3.59			SD of logged Data		0.641
152											
153	Critical Values for Background Threshold Values (BTVs)										
154				Tolerance Factor K (For UTL)		1.824			d2max (for USL)		3.467
155											
156	Normal GOF Test										
157				Shapiro Wilk Test Statistic		0.345			Normal GOF Test		
158				5% Shapiro Wilk P Value		0			Data Not Normal at 5% Significance Level		
159				Lilliefors Test Statistic		0.38			Lilliefors GOF Test		

	A	B	C	D	E	F	G	H	I	J	K	L
160					5% Lilliefors Critical Value	0.0596	Data Not Normal at 5% Significance Level					
161	Data Not Normal at 5% Significance Level											
162												
163	Background Statistics Assuming Normal Distribution											
164				95% UTL with	95% Coverage	0.159				90% Percentile (z)		0.123
165					95% UPL (t)	0.148				95% Percentile (z)		0.147
166					95% USL	0.266				99% Percentile (z)		0.191
167												
168	Gamma GOF Test											
169					A-D Test Statistic	43.92	Anderson-Darling Gamma GOF Test					
170					5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level					
171					K-S Test Statistic	0.33	Kolmogorov-Smirnov Gamma GOF Test					
172					5% K-S Critical Value	0.062	Data Not Gamma Distributed at 5% Significance Level					
173	Data Not Gamma Distributed at 5% Significance Level											
174												
175	Gamma Statistics											
176					k hat (MLE)	1.497				k star (bias corrected MLE)		1.48
177					Theta hat (MLE)	0.0267				Theta star (bias corrected MLE)		0.027
178					nu hat (MLE)	670.7				nu star (bias corrected)		663
179					MLE Mean (bias corrected)	0.04				MLE Sd (bias corrected)		0.0329
180												
181	Background Statistics Assuming Gamma Distribution											
182				95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0972				90% Percentile		0.0836
183				95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0922				95% Percentile		0.105
184				95% WH Approx. Gamma UTL with	95% Coverage	0.107				99% Percentile		0.152
185				95% HW Approx. Gamma UTL with	95% Coverage	0.102						
186					95% WH USL	0.242				95% HW USL		0.242
187												
188	Lognormal GOF Test											
189					Shapiro Wilk Test Statistic	0.571	Shapiro Wilk Lognormal GOF Test					
190					5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level					
191					Lilliefors Test Statistic	0.309	Lilliefors Lognormal GOF Test					
192					5% Lilliefors Critical Value	0.0596	Data Not Lognormal at 5% Significance Level					
193	Data Not Lognormal at 5% Significance Level											
194												
195	Background Statistics assuming Lognormal Distribution											
196				95% UTL with	95% Coverage	0.0889				90% Percentile (z)		0.0628
197					95% UPL (t)	0.0798				95% Percentile (z)		0.0792
198					95% USL	0.255				99% Percentile (z)		0.123
199												
200	Nonparametric Distribution Free Background Statistics											
201	Data do not follow a Discernible Distribution (0.05)											
202												
203	Nonparametric Upper Limits for Background Threshold Values											
204					Order of Statistic, r	217				95% UTL with	95% Coverage	0.22
205				Approx, f used to compute achieved CC		1.428				pproximate Actual Confidence Coefficient achieved by UTL		0.876
206										Approximate Sample Size needed to achieve specified CC		260
207				95% Percentile Bootstrap UTL with	95% Coverage	0.22				95% BCA Bootstrap UTL with	95% Coverage	0.22
208					95% UPL	0.136				90% Percentile		0.0594
209					90% Chebyshev UPL	0.236				95% Percentile		0.0914
210					95% Chebyshev UPL	0.325				99% Percentile		0.4
211					95% USL	0.46						
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
214	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
215	and consists of observations collected from clean unimpacted locations.											
216	The use of USL tends to provide a balance between false positives and false negatives provided the data											
217	represents a background data set and when many onsite observations need to be compared with the BTV.											
218												
219	Cadmium	Reporting limit is the BTV										
220												
221	General Statistics											
222					Total Number of Observations	173			Number of Distinct Observations	1		
223					Minimum	5.0000E-4			First Quartile	5.0000E-4		
224					Second Largest	5.0000E-4			Median	5.0000E-4		
225					Maximum	5.0000E-4			Third Quartile	5.0000E-4		
226					Mean	5.0000E-4			SD	3.262E-19		
227					Coefficient of Variation	6.524E-16			Skewness	-1.009		
228												
229	Warning: There is only one distinct observation value in this data set - resulting in '0' variance!											
230	ProUCL (or any other software) should not be used on such a data set!											
231	The data set for variable Cadmium was not processed!											
232												
233	If possible, compute and collect Data Quality Objectives (DQOs) based sample size and analytical results.											
234	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
235												
236												
237	Calcium											
238												
239	General Statistics											
240					Total Number of Observations	222			Number of Distinct Observations	125		
241									Number of Missing Observations	2		
242					Minimum	65.1			First Quartile	90.55		
243					Second Largest	128			Median	97		
244					Maximum	131			Third Quartile	103.8		
245					Mean	97.62			SD	11.02		
246					Coefficient of Variation	0.113			Skewness	0.255		
247					Mean of logged Data	4.575			SD of logged Data	0.114		
248												
249	Critical Values for Background Threshold Values (BTVs)											
250					Tolerance Factor K (For UTL)	1.825			d2max (for USL)	3.464		
251												
252	Normal GOF Test											
253					Shapiro Wilk Test Statistic	0.968			Normal GOF Test			
254					5% Shapiro Wilk P Value	0.00456			Data Not Normal at 5% Significance Level			
255					Lilliefors Test Statistic	0.0787			Lilliefors GOF Test			
256					5% Lilliefors Critical Value	0.0599			Data Not Normal at 5% Significance Level			
257	Data Not Normal at 5% Significance Level											
258												
259	Background Statistics Assuming Normal Distribution											
260				95% UTL with	95% Coverage	117.7			90% Percentile (z)	111.7		
261					95% UPL (t)	115.9			95% Percentile (z)	115.8		
262					95% USL	135.8			99% Percentile (z)	123.3		
263												
264	Gamma GOF Test											
265					A-D Test Statistic	1.534			Anderson-Darling Gamma GOF Test			

266				5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level					
267				K-S Test Statistic	0.0737	Kolmogorov-Smirnov Gamma GOF Test					
268				5% K-S Critical Value	0.0609	Data Not Gamma Distributed at 5% Significance Level					
269				Data Not Gamma Distributed at 5% Significance Level							
270											
271				Gamma Statistics							
272				k hat (MLE)	78.44	k star (bias corrected MLE)	77.39				
273				Theta hat (MLE)	1.244	Theta star (bias corrected MLE)	1.261				
274				nu hat (MLE)	34829	nu star (bias corrected)	34360				
275				MLE Mean (bias corrected)	97.62	MLE Sd (bias corrected)	11.1				
276											
277				Background Statistics Assuming Gamma Distribution							
278				95% Wilson Hilferty (WH) Approx. Gamma UPL	116.6	90% Percentile	112.1				
279				95% Hawkins Wixley (HW) Approx. Gamma UPL	116.7	95% Percentile	116.6				
280				95% WH Approx. Gamma UTL with 95% Coverage	118.7	99% Percentile	125.3				
281				95% HW Approx. Gamma UTL with 95% Coverage	118.9						
282				95% WH USL	140.6	95% HW USL	141.3				
283											
284				Lognormal GOF Test							
285				Shapiro Wilk Test Statistic	0.967	Shapiro Wilk Lognormal GOF Test					
286				5% Shapiro Wilk P Value	0.00341	Data Not Lognormal at 5% Significance Level					
287				Lilliefors Test Statistic	0.0762	Lilliefors Lognormal GOF Test					
288				5% Lilliefors Critical Value	0.0599	Data Not Lognormal at 5% Significance Level					
289				Data Not Lognormal at 5% Significance Level							
290											
291				Background Statistics assuming Lognormal Distribution							
292				95% UTL with 95% Coverage	119.4	90% Percentile (z)	112.2				
293				95% UPL (t)	117.1	95% Percentile (z)	117				
294				95% USL	143.9	99% Percentile (z)	126.4				
295											
296				Nonparametric Distribution Free Background Statistics							
297				Data do not follow a Discernible Distribution (0.05)							
298											
299				Nonparametric Upper Limits for Background Threshold Values							
300				Order of Statistic, r	216	95% UTL with 95% Coverage	121				
301				Approx, f used to compute achieved CC	1.624	pproximate Actual Confidence Coefficient achieved by UTL	0.93				
302						Approximate Sample Size needed to achieve specified CC	234				
303				95% Percentile Bootstrap UTL with 95% Coverage	120	95% BCA Bootstrap UTL with 95% Coverage	119				
304				95% UPL	118.9	90% Percentile	110.9				
305				90% Chebyshev UPL	130.8	95% Percentile	118				
306				95% Chebyshev UPL	145.8	99% Percentile	127				
307				95% USL	131						
308											
309				Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
310				Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
311				and consists of observations collected from clean unimpacted locations.							
312				The use of USL tends to provide a balance between false positives and false negatives provided the data							
313				represents a background data set and when many onsite observations need to be compared with the BTV.							
314											
315	Chloride										
316											
317	General Statistics										
318				Total Number of Observations	360	Number of Distinct Observations	237				

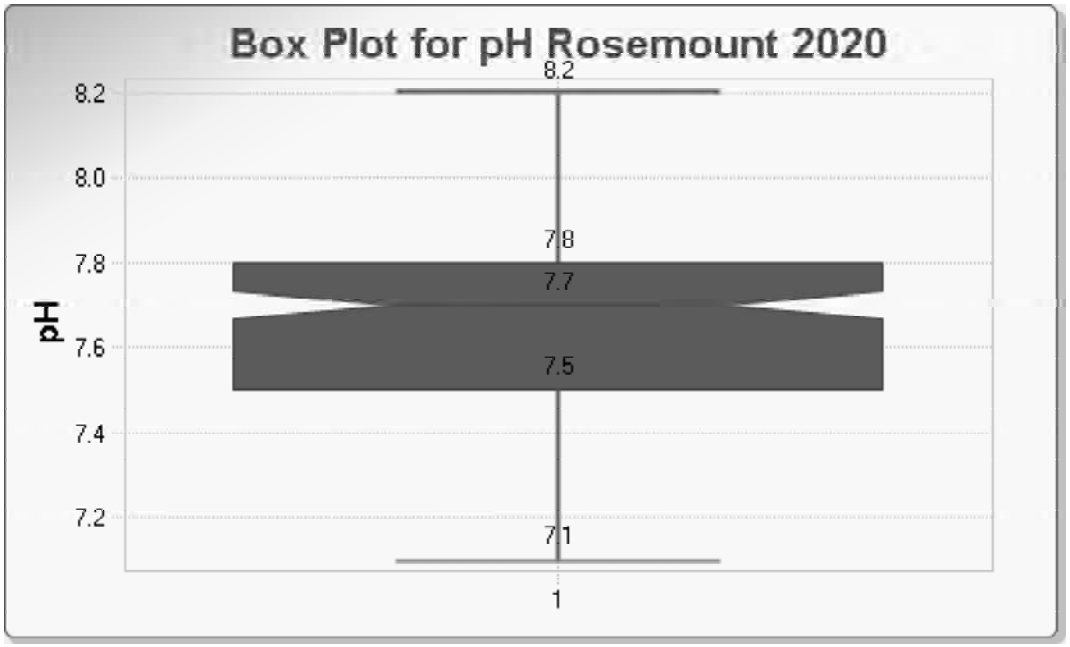
319										Number of Missing Observations		15
320					Minimum	16.1				First Quartile		32.88
321					Second Largest	109				Median		41.4
322					Maximum	113				Third Quartile		48.3
323					Mean	42.77				SD		14.69
324					Coefficient of Variation	0.344				Skewness		1.66
325					Mean of logged Data	3.705				SD of logged Data		0.316
326												
327					Critical Values for Background Threshold Values (BTVs)							
328					Tolerance Factor K (For UTL)	1.785				d2max (for USL)		3.604
329												
330					Normal GOF Test							
331					Shapiro Wilk Test Statistic	0.876				Normal GOF Test		
332					5% Shapiro Wilk P Value	0				Data Not Normal at 5% Significance Level		
333					Lilliefors Test Statistic	0.148				Lilliefors GOF Test		
334					5% Lilliefors Critical Value	0.0471				Data Not Normal at 5% Significance Level		
335					Data Not Normal at 5% Significance Level							
336												
337					Background Statistics Assuming Normal Distribution							
338				95% UTL with	95% Coverage	68.99				90% Percentile (z)		61.6
339					95% UPL (t)	67.04				95% Percentile (z)		66.94
340					95% USL	95.74				99% Percentile (z)		76.96
341												
342					Gamma GOF Test							
343					A-D Test Statistic	3.493				Anderson-Darling Gamma GOF Test		
344					5% A-D Critical Value	0.755				Data Not Gamma Distributed at 5% Significance Level		
345					K-S Test Statistic	0.108				Kolmogorov-Smirnov Gamma GOF Test		
346					5% K-S Critical Value	0.048				Data Not Gamma Distributed at 5% Significance Level		
347					Data Not Gamma Distributed at 5% Significance Level							
348												
349					Gamma Statistics							
350					k hat (MLE)	9.913				k star (bias corrected MLE)		9.833
351					Theta hat (MLE)	4.315				Theta star (bias corrected MLE)		4.35
352					nu hat (MLE)	7138				nu star (bias corrected)		7079
353					MLE Mean (bias corrected)	42.77				MLE Sd (bias corrected)		13.64
354												
355					Background Statistics Assuming Gamma Distribution							
356				95% Wilson Hilferty (WH) Approx. Gamma UPL		67.36				90% Percentile		60.92
357				95% Hawkins Wixley (HW) Approx. Gamma UPL		67.56				95% Percentile		67.4
358				95% WH Approx. Gamma UTL with	95% Coverage	69.83				99% Percentile		80.71
359				95% HW Approx. Gamma UTL with	95% Coverage	70.14						
360					95% WH USL	110				95% HW USL		113.3
361												
362					Lognormal GOF Test							
363					Shapiro Wilk Test Statistic	0.97				Shapiro Wilk Lognormal GOF Test		
364					5% Shapiro Wilk P Value	4.0304E-4				Data Not Lognormal at 5% Significance Level		
365					Lilliefors Test Statistic	0.0927				Lilliefors Lognormal GOF Test		
366					5% Lilliefors Critical Value	0.0471				Data Not Lognormal at 5% Significance Level		
367					Data Not Lognormal at 5% Significance Level							
368												
369					Background Statistics assuming Lognormal Distribution							
370				95% UTL with	95% Coverage	71.43				90% Percentile (z)		60.93
371					95% UPL (t)	68.49				95% Percentile (z)		68.35

372				95% USL	127			99% Percentile (z)	84.78		
373											
374	Nonparametric Distribution Free Background Statistics										
375	Data do not follow a Discernible Distribution (0.05)										
376											
377	Nonparametric Upper Limits for Background Threshold Values										
378				Order of Statistic, r	348			95% UTL with 95% Coverage	75.4		
379				Approx, f used to compute achieved CC	1.409			pproximate Actual Confidence Coefficient achieved by UTL	0.914		
380								Approximate Sample Size needed to achieve specified CC	385		
381			95% Percentile Bootstrap UTL with	95% Coverage	75.61			95% BCA Bootstrap UTL with 95% Coverage	75.61		
382				95% UPL	71.34			90% Percentile	59.21		
383				90% Chebyshev UPL	86.92			95% Percentile	70.26		
384				95% Chebyshev UPL	106.9			99% Percentile	100.2		
385				95% USL	113						
386											
387	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.										
388	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers										
389	and consists of observations collected from clean unimpacted locations.										
390	The use of USL tends to provide a balance between false positives and false negatives provided the data										
391	represents a background data set and when many onsite observations need to be compared with the BTV.										
392											
393	Cobalt										
394											
395	General Statistics										
396				Total Number of Observations	187			Number of Distinct Observations	19		
397				Minimum	3.0000E-4			First Quartile	3.0000E-4		
398				Second Largest	8.0000E-4			Median	3.0000E-4		
399				Maximum	8.0000E-4			Third Quartile	3.0000E-4		
400				Mean	3.2465E-4			SD	8.1599E-5		
401				Coefficient of Variation	0.251			Skewness	4.279		
402				Mean of logged Data	-8.053			SD of logged Data	0.178		
403											
404	Critical Values for Background Threshold Values (BTVs)										
405				Tolerance Factor K (For UTL)	1.843			d2max (for USL)	3.412		
406											
407	Normal GOF Test										
408				Shapiro Wilk Test Statistic	0.353			Normal GOF Test			
409				5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level			
410				Lilliefors Test Statistic	0.448			Lilliefors GOF Test			
411				5% Lilliefors Critical Value	0.0652			Data Not Normal at 5% Significance Level			
412	Data Not Normal at 5% Significance Level										
413											
414	Background Statistics Assuming Normal Distribution										
415				95% UTL with 95% Coverage	4.7502E-4			90% Percentile (z)	4.2923E-4		
416				95% UPL (t)	4.5990E-4			95% Percentile (z)	4.5887E-4		
417				95% USL	6.0305E-4			99% Percentile (z)	5.1448E-4		
418											
419	Gamma GOF Test										
420				A-D Test Statistic	50.39			Anderson-Darling Gamma GOF Test			
421				5% A-D Critical Value	0.751			Data Not Gamma Distributed at 5% Significance Level			
422				K-S Test Statistic	0.457			Kolmogorov-Smirnov Gamma GOF Test			
423				5% K-S Critical Value	0.0668			Data Not Gamma Distributed at 5% Significance Level			
424	Data Not Gamma Distributed at 5% Significance Level										

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426					Gamma Statistics							
427					k hat (MLE)	25.47			k star (bias corrected MLE)			25.07
428					Theta hat (MLE)	1.2745E-5			Theta star (bias corrected MLE)			1.2951E-5
429					nu hat (MLE)	9527			nu star (bias corrected)			9375
430					MLE Mean (bias corrected)	3.2465E-4			MLE Sd (bias corrected)			6.4844E-5
431												
432					Background Statistics Assuming Gamma Distribution							
433				95% Wilson Hilferty (WH) Approx. Gamma UPL		4.3760E-4			90% Percentile			4.1003E-4
434				95% Hawkins Wixley (HW) Approx. Gamma UPL		4.3503E-4			95% Percentile			4.3815E-4
435				95% WH Approx. Gamma UTL with	95% Coverage	4.5228E-4			99% Percentile			4.9422E-4
436				95% HW Approx. Gamma UTL with	95% Coverage	4.4964E-4						
437					95% WH USL	5.9002E-4			95% HW USL			5.8858E-4
438												
439					Lognormal GOF Test							
440					Shapiro Wilk Test Statistic	0.389			Shapiro Wilk Lognormal GOF Test			
441					5% Shapiro Wilk P Value	0			Data Not Lognormal at 5% Significance Level			
442					Lilliefors Test Statistic	0.459			Lilliefors Lognormal GOF Test			
443					5% Lilliefors Critical Value	0.0652			Data Not Lognormal at 5% Significance Level			
444					Data Not Lognormal at 5% Significance Level							
445												
446					Background Statistics assuming Lognormal Distribution							
447				95% UTL with	95% Coverage	4.4200E-4			90% Percentile (z)			3.9994E-4
448					95% UPL (t)	4.2765E-4			95% Percentile (z)			4.2669E-4
449					95% USL	5.8457E-4			99% Percentile (z)			4.8177E-4
450												
451					Nonparametric Distribution Free Background Statistics							
452					Data do not follow a Discernible Distribution (0.05)							
453												
454					Nonparametric Upper Limits for Background Threshold Values							
455					Order of Statistic, r	182			95% UTL with	95% Coverage		5.4000E-4
456				Approx, f used to compute achieved CC		1.596			pproximate Actual Confidence Coefficient achieved by UTL			0.91
457									Approximate Sample Size needed to achieve specified CC			208
458				95% Percentile Bootstrap UTL with	95% Coverage	5.4000E-4			95% BCA Bootstrap UTL with	95% Coverage		5.4000E-4
459					95% UPL	5.2200E-4			90% Percentile			3.5000E-4
460					90% Chebyshev UPL	5.7010E-4			95% Percentile			5.0400E-4
461					95% Chebyshev UPL	6.8128E-4			99% Percentile			8.0000E-4
462					95% USL	8.0000E-4						
463												
464					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
465					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
466					and consists of observations collected from clean unimpacted locations.							
467					The use of USL tends to provide a balance between false positives and false negatives provided the data							
468					represents a background data set and when many onsite observations need to be compared with the BTV.							
469												

1			Background Statistics for Uncensored Full Data Sets								
2	User Selected Options										
3	Date/Time of Computation		ProUCL 5.11/12/2021 3:19:46 PM								
4	From File		C:\Users\bjanowiak\Documents\My EQuIS Work\GES\SKB - Rosemount Facility\Rosemount common AP								
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	Chromium										
12											
13	General Statistics										
14				Total Number of Observations	151				Number of Distinct Observations	26	
15				Minimum	0.004				First Quartile	0.004	
16				Second Largest	0.052				Median	0.004	
17				Maximum	0.27				Third Quartile	0.004	
18				Mean	0.00791				SD	0.0229	
19				Coefficient of Variation	2.891				Skewness	10.33	
20				Mean of logged Data	-5.312				SD of logged Data	0.618	
21											
22						Critical Values for Background Threshold Values (BTVs)						
23				Tolerance Factor K (For UTL)	1.867				d2max (for USL)	3.345	
24											
25						Normal GOF Test					
26				Shapiro Wilk Test Statistic	0.192				Normal GOF Test		
27				5% Shapiro Wilk P Value	0				Data Not Normal at 5% Significance Level		
28				Lilliefors Test Statistic	0.432				Lilliefors GOF Test		
29				5% Lilliefors Critical Value	0.0725				Data Not Normal at 5% Significance Level		
30						Data Not Normal at 5% Significance Level					
31											
32						Background Statistics Assuming Normal Distribution					
33			95% UTL with	95% Coverage	0.0506				90% Percentile (z)	0.0372	
34				95% UPL (t)	0.0459				95% Percentile (z)	0.0455	
35				95% USL	0.0844				99% Percentile (z)	0.0611	
36											
37						Gamma GOF Test					
38				A-D Test Statistic	6.623E+28				Anderson-Darling Gamma GOF Test		
39				5% A-D Critical Value	0.778				Data Not Gamma Distributed at 5% Significance Level		
40				K-S Test Statistic	0.444				Kolmogorov-Smirnov Gamma GOF Test		
41				5% K-S Critical Value	0.0782				Data Not Gamma Distributed at 5% Significance Level		
42						Data Not Gamma Distributed at 5% Significance Level					
43											
44						Gamma Statistics					
45				k hat (MLE)	1.198				k star (bias corrected MLE)	1.178	
46				Theta hat (MLE)	0.0066				Theta star (bias corrected MLE)	0.00671	
47				nu hat (MLE)	361.7				nu star (bias corrected)	355.9	
48				MLE Mean (bias corrected)	0.00791				MLE Sd (bias corrected)	0.00729	
49											
50						Background Statistics Assuming Gamma Distribution					
51			95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0192				90% Percentile	0.0175	
52			95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0175				95% Percentile	0.0224	
53			95% WH Approx. Gamma UTL with	95% Coverage	0.0218				99% Percentile	0.0336	

	A	B	C	D	E	F	G	H	I	J	K	L
54				95% HW Approx. Gamma UTL with	95% Coverage	0.0199						
55					95% WH USL	0.0475					95% HW USL	0.0447
56												
57					Lognormal GOF Test							
58					Shapiro Wilk Test Statistic	0.411	Shapiro Wilk Lognormal GOF Test					
59					5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level					
60					Lilliefors Test Statistic	0.441	Lilliefors Lognormal GOF Test					
61					5% Lilliefors Critical Value	0.0725	Data Not Lognormal at 5% Significance Level					
62					Data Not Lognormal at 5% Significance Level							
63												
64					Background Statistics assuming Lognormal Distribution							
65				95% UTL with	95% Coverage	0.0156				90% Percentile (z)		0.0109
66					95% UPL (t)	0.0138				95% Percentile (z)		0.0136
67					95% USL	0.039				99% Percentile (z)		0.0208
68												
69					Nonparametric Distribution Free Background Statistics							
70					Data do not follow a Discernible Distribution (0.05)							
71												
72					Nonparametric Upper Limits for Background Threshold Values							
73					Order of Statistic, r	147				95% UTL with	95% Coverage	0.038
74					Approx, f used to compute achieved CC	1.547	pproximate Actual Confidence Coefficient achieved by UTL					0.878
75							Approximate Sample Size needed to achieve specified CC					181
76				95% Percentile Bootstrap UTL with	95% Coverage	0.038				95% BCA Bootstrap UTL with	95% Coverage	0.0405
77					95% UPL	0.0256				90% Percentile		0.007
78					90% Chebyshev UPL	0.0767				95% Percentile		0.0225
79					95% Chebyshev UPL	0.108				99% Percentile		0.0505
80					95% USL	0.27						
81												
82					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
83					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
84					and consists of observations collected from clean unimpacted locations.							
85					The use of USL tends to provide a balance between false positives and false negatives provided the data							
86					represents a background data set and when many onsite observations need to be compared with the BTV.							
87												


Box Plot for pH Rosemount 2020
pH
8.2
8.0
7.8
7.6
7.4
7.2
8.2
7.8
7.7
7.5
7.1
1