2023 Annual Groundwater Monitoring and Corrective Action Report AVS CCR Landfill

Antelope Valley Station
Beulah, North Dakota

Basin Electric Power Cooperative

Basin Electric Power
Cooperative
Bismarck, North Dakota

Quality information

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Table of Contents

Figures

Tables

Attachments

List of Acronyms

AECOM	AECOM Technical Services, Inc.
ASD	alternative source demonstration
AVS	Antelope Valley Station
Basin	Basin Electric Power Cooperative
CCR	Coal Combustion Residuals
CCR unit	CCR landfill or surface impoundment
CFR	Code of Federal Regulations
FGD	flue gas desulfurization
ft amsl	feet above mean sea level
GWPS	groundwater protection standard
LPL	lower prediction limit
mg/L	milligrams per liter
MW	megawatt(s)
RL	reporting limit
SAP	Sampling and Analysis Plan
SSI	statistically significant increase
UCL	upper control limit
UPL	upper prediction limit
USEPA	United States Environmental Protection Agency

Executive Summary

This report summarizes groundwater monitoring and corrective action activities completed between January 1 and December 31, 2023, at the Coal Combustion Residuals (CCR) Landfill at Antelope Valley Station (AVS), as required by 40 Code of Federal Regulations (CFR) Section 257.90(e) of the United States Environmental Protection Agency (USEPA) CCR Rule. The location of the CCR unit and program monitoring network for the CCR unit, including supporting monitoring wells, are illustrated on **Figures 1** and **2**.

Detection monitoring of the Landfill was initiated in 2018. In late May of 2023, CCR waste started being placed into the Landfill expansion area. Subsequently, three Landfill expansion wells were incorporated into the CCR monitoring program including background monitoring well MW-21(S) and downgradient monitoring wells MW-22(S) and MW-24(S). Detection monitoring through October 2023 identified that chloride concentrations in well MW-24(S) represented a statistically significant increase (SSI) above background. No other Appendix III constituents (boron, calcium, fluoride, pH, sulfate, and total dissolved solids) were identified as SSIs in downgradient monitoring wells MW-15(S), MW-16(S), MW-17(S), MW-20(S), MW-22(S), and MW-24(S). Chloride concentrations measured at MW-24(S) between May 2021 and October 2023 appear to be consistently and anomalously high in comparison to surrounding wells. Due to this isolated anomalous nature and the location of the well in a previously undeveloped area adjacent to a fully lined expansion cell, Basin Electric Power Cooperative (Basin) anticipates pursuing an alternative source demonstration (ASD) in accordance with CFR Section 257.94(e). Results of the ASD will determine whether the unit will remain in Detection monitoring or begin Assessment monitoring for the 2024 reporting period.

Other activities and conditions for the 2023 annual reporting period include:

- Semiannual Detection monitoring events were conducted in July and September/October. Monitoring involved sampling of three background monitoring wells and six downgradient monitoring wells.
- Upper prediction limits (UPLs) for Appendix III parameters were updated upon completion of baseline monitoring events for the Landfill expansion wells, in anticipation of including them in the Landfill CCR monitoring program. The Landfill expansion wells included in site-specific background UPL revision and the CCR monitoring program include background monitoring well MW-21(S) and downgradient monitoring wells MW-22(S) and MW-24(S).
- No well repair or decommissioning of the existing program monitoring networks was conducted.
- No program transitions (Detection to Assessment or vice versa) were triggered.
- No programmatic problems were encountered so no remedies were required.

Anticipated activities for the next annual reporting period include:

- Demonstration of an alternative source of chloride within monitoring well MW-24(S).
- Completion of two semiannual Detection monitoring events.
- Statistical evaluation of groundwater data for Appendix III constituents.

1.0 Introduction

On behalf of Basin Electric Power Cooperative (Basin), AECOM Technical Services, Inc. (AECOM) has prepared the 2023 annual report documenting groundwater monitoring and corrective action for the Coal Combustion Residuals (CCR) Landfill at Basin's Antelope Valley Station (AVS).

Section 1 provides background information on the power generating facility, the CCR unit(s) present at the facility, and the physical setting of the CCR unit(s), specifically with regard to groundwater conditions. Section 2 summarizes CCR groundwater monitoring activities conducted prior to 2023. Section 3 summarizes the groundwater monitoring and corrective action activities completed in 2023, and references attachments to this report that contain detailed documentation of those activities. Section 4 provides general information including program transitions, problems encountered, and anticipated activities in 2024. Section 5 summarizes the report content. Section 6 lists references cited in this report.

1.1 Regulatory Background

The CCR Rule, effective on October 19, 2015, established standards for the disposal of CCR in landfills and surface impoundments (CCR units). In particular, the rule set forth groundwater monitoring and corrective action requirements for CCR units. The Rule includes the requirement for an "annual groundwater monitoring and corrective action report" (annual report), submitted to the operating record annually on or before January 31. The annual report is intended to document the status of the groundwater monitoring and corrective action program for each CCR unit, summarize key actions completed in the previous year, and project key activities for the upcoming year. This report is the seventh annual report, and includes activities performed in calendar year 2023.

1.2 Facility Location and Operational History

AVS is a coal-based generating station located north of Beulah, North Dakota (**Figure 1**). The plant consists of two power-generating units with a total power output capacity of 900 megawatts (MWs):

- Unit 1, with a rating of 450 MWs, which began operating in 1984; and
- Unit 2, with a rating of 450 MWs, which began operating in 1986.

CCR produced at AVS includes fly ash, bottom ash, and flue gas desulfurization (FGD) waste.

1.3 CCR Unit Description

CCR is disposed of at AVS in the following CCR unit:

- Section 7 Ash Landfill 0160 (Landfill).

The Landfill is located northeast of the generating units and office complex in an area of mine spoils identified as the Coteau Properties Freedom Mine (**Figure 1**). Basin reports that, in 2023, the Landfill received approximately 667,000 cubic yards of solid waste, including fly ash, FGD waste, and a minor contribution of solid debris.

An expansion cell of the Landfill was completed in 2023 and only the completed expansion cell began accepting CCR waste in late May 2023. Additional expansion cells will be constructed in the future as needed for placement of CCR waste. Four additional monitoring wells were installed in September 2020 and eight baseline groundwater monitoring events for three of these wells were conducted between May 2021 and September 2022 as described in Section 2 below (the fourth well does not yield sufficient water for sampling).

1.4 Physical Setting

The geology underlying the site includes mine spoils underlain by the Sentinel Butte Formation. This formation is comprised of continental deposits more than 1,000-feet thick, consisting of dense clay, weakly cemented sandstone, mudstone, and lignite (coal).

Precipitation supplies surface water to perennial and ephemeral streams that flow generally east toward the Beulah Trench then drain north towards Lake Sakakawea. Groundwater is recharged primarily through regional infiltration of melt water in the spring.

The base of the Landfill is underlain by 115 to 200 feet (approximately) of clay-rich mine spoil that overlies the Lower Sentinel Butte Formation. At the site, the Sentinel Butte is comprised primarily of dense clay with a trace of very fine sand and beds of lignite typically ranging from 6- to 9-feet thick. Monitoring well drilling activities to date have not penetrated to depths great enough to characterize the lower portions of the Sentinel Butte.

The uppermost aquifer is found within the 6- to 9-foot unmined lignite bed, mapped locally as the Spaer Bed or Spaer Lignite, located at depths ranging roughly from 180 to 260 feet below ground surface. The elevation of the Spaer Lignite varies across the site by approximately 35 feet from 1,844 feet above mean sea level (ft amsl) at MW-18(S) to 1,879 ft amsl at MW-23(S). The potentiometric surface reflects that variation. Across the southern cell, the potentiometric surface generally slopes to the east with groundwater elevations ranging from approximately 1,893 ft amsl on the western side of the Landfill to 1,886 ft amsl on the eastern side. The northern cell potentiometric surface generally slopes to the northeast with groundwater elevations ranging from 1,893 ft amsl in the southwestern corner to 1,864 ft amsl in the northeastern corner. Field hydraulic conductivity measurements from 2017 for the uppermost aquifer range from 1.65 x 10-4 centimeters per second in MW-19(S) to 2.48 x 10-9 centimeter per second in Well MW-16(S).

2.0 CCR Groundwater Monitoring Activity Prior to 2023

The regulatory process for CCR groundwater monitoring and corrective action is established by 40 CFR Sections 257.90 through 257.98. The process includes a phased approach to groundwater monitoring and leads (if applicable) to the establishment of groundwater protection standards (GWPSs) for each CCR unit. Exceedances of GWPSs that are determined to be statistically significant can trigger requirements for additional groundwater characterization and assessment of corrective measures followed by selection of remedy and remedy implementation.

The following paragraphs provide a summary of CCR groundwater monitoring activities performed prior to 2023. CCR groundwater monitoring activities performed between January and December 2023 are discussed in Section 3.

Groundwater monitoring at AVS is performed using a network of monitoring wells that includes wells to monitor background water quality that is not potentially influenced by the presence of the CCR unit, and wells placed at the downgradient boundary of the unit (**Figure 2**). The hydro-stratigraphic positions of the CCR monitoring wells selected for sampling background and downgradient groundwater quality for the Landfill are summarized below:

CCR Unit	Background Wells	Downgradient Wells
Active Landfill	MW-18(S), MW-19(S)	MW-15(S), MW-16(S), MW-17(S), MW-20(S)
Landfill Expansion Area	MW-21(S)	MW-22(S), MW-24(S)

Two other monitoring wells, MW-14(S) and MW-23(S) did not yield enough groundwater to obtain representative samples, so they have been excluded from groundwater monitoring. However, both remain in place for optional collection of groundwater level measurements for potential inclusion in the potentiometric evaluation of the Site.

Baseline monitoring initiated in August 2016 involved sampling groundwater for Part 257 Appendix III and Appendix IV constituents over ten baseline Detection monitoring events.

The Landfill expansion area monitoring wells (MW-21(S), MW-22(S), MW-23(S), and MW-24(S)) were installed between September 09 and September 24, 2020. Baseline monitoring of these new wells was initiated in the spring of 2021 for groundwater analysis of the CCR Rule Part 257 Appendix III and Appendix IV constituents. Three of the baseline monitoring events occurred during the 2021 reporting period and five events were completed in the 2022 reporting period. Upon completion of these baseline monitoring events and acceptance of CCR waste into the northern Landfill expansion cell in May 2023, monitoring wells MW-21(S), MW-22(S), and MW-24(S) were incorporated into the CCR monitoring well network. Analytical results and laboratory reports from the landfill expansion baseline monitoring events are included in **Attachment A**.

Detection monitoring events prior to 2023 were performed in general accordance with procedures established in the site-specific Sampling and Analysis Plan (SAP) (AECOM 2018a), which is included in the facility's Operating Record. The SAP describes the procedures for equipment calibration, monitoring well water level measurement, monitoring well purging and sampling, sample custody, sample shipping, laboratory analysis, and documentation requirements for each groundwater sample submitted. The results of baseline monitoring and 2018 Detection monitoring at the Landfill were presented and discussed in the First and Second Annual Groundwater Monitoring and Corrective Action Reports, respectively (AECOM 2018b, 2019). The Landfill was placed in Detection monitoring in the winter of 2018 with the first Detection monitoring groundwater sampling event completed in April 2018, then twice annually thereafter. The results of Detection monitoring at the Landfill in 2018, 2019, 2020, 2021, and 2022 were presented and discussed in the previous Annual Groundwater Monitoring and Corrective Action Reports issued on January 31, 2019 (AECOM 2019); January 31, 2020 (AECOM 2020); January 31, 2021 (AECOM 2021); January 31, 2022 (AECOM 2022b), and January 31, 2023 (AECOM 2023), respectively.

3.0 CCR Groundwater Monitoring and Corrective Action Activities in 2023

This section summarizes the groundwater monitoring and corrective action conducted at the Landfill in 2023 to comply with the groundwater requirements of the CCR rule:

- Groundwater Detection monitoring activities:
  - Monitoring system evaluation completed in July and September/October 2023
  - Groundwater sampling completed in July and September/October 2023
  - Laboratory analysis of groundwater samples in July and September/October 2023
  - Revision of site-specific background UPLs based on incorporation of baseline monitoring results (May 2021 through September 2022) from the new background well (MW-21(S) in the expansion area.
  - Statistical analysis of the monitoring results of the groundwater samples in July and September/October 2023
- Groundwater Corrective Action – Not applicable
- Initiation of installation of additional monitoring wells around the northern expansion cell of the landfill by Barr and Associates.

Further details concerning each of these activities, including a brief discussion of work completed during the reporting period are provided below.

3.1 Detection Monitoring Activities

3.1.1 Monitoring System Evaluation

As described in the CCR Groundwater Monitoring System Report (AECOM 2017), monitoring wells were installed around the CCR unit at the Landfill with appropriate total depth and placement of the well screen to: (1) facilitate collection of representative groundwater samples from the uppermost aquifer; and (2) accurately measure water table elevations to support evaluation of groundwater gradient and flow direction. All monitoring wells comprising the monitoring system were found to be in good condition during the Detection monitoring events conducted in July and September/October 2023.

Potentiometric surface maps constructed using the depth-to-groundwater measurements obtained at the beginning of each event are presented in **Attachment A**. During the September/October event, water levels in the southern Landfill cell wells were measured on September 25, 2023. The northern expansion wells were measured two weeks later on October 10, 2023. The direction of groundwater flow observed in fall of 2023 was generally east across the southern Landfill cell, which is consistent with the direction observed in previous years, and northeast across the northern expansion cell. These flow directions support the designation of the wells noted in Section 2 above to represent background groundwater quality and the quality of groundwater downgradient of the unit.

3.1.2 Groundwater Sampling and Analysis

The Detection monitoring events were completed July and September/October of 2023 and included analysis of collected groundwater samples for the constituents listed in Part 257 Appendix III. Monitoring wells MW-15(S), MW-16(S), MW-17(S), MW-18(S), MW-19(S), MW-20(S), MW-21(S), MW-22(S), and MW-24(S) were sampled as part of Detection monitoring. **Attachment A** presents the tabulated laboratory analytical results, potentiometric surface maps for the uppermost aquifer, estimated groundwater flow velocities across the Landfill, and a tabulated summary of field water level measurements. Sampling and analysis were performed in general accordance with procedures established in the SAP, Revision 1 (AECOM 2022a).

3.1.3 Statistical Procedures and Analysis

The cumulative groundwater data collected for Appendix III indicator parameters at the Landfill were evaluated in accordance with the statistical procedures certified on October 17, 2017 (AECOM 2017). The data were evaluated using an interwell approach that statistically compares constituent concentrations at downgradient monitoring wells to those present at background monitoring wells. For the Landfill, monitoring wells MW-18(S), MW-19(S), and MW-21(S) are designated as background wells because they are located upgradient of the Landfill, whereas the remaining monitoring wells MW-15(S), MW-16(S), MW-17(S), MW-20(S), MW-22(S), and MW-24(S) are located downgradient of the Landfill.

ProUCL Version 5.1 was selected for the development of site-specific background UPLs with a 95-percent confidence for each Appendix III constituent utilizing monitoring well data from background monitoring wells collected between July 2016 and October 2020 and from Landfill expansion background monitoring wells collected between May 2021 and September 2022. The input and output files used for development of the UPLs are provided as **Attachment B**. A lower prediction limit (LPL) was also developed for pH, which is a two-sided parameter, by calculating nonparametric upper and lower prediction limits. Because ProUCL does not calculate LPLs, Excel was used to match the UPL calculated by ProUCL and calculate a corresponding LPL . The concentrations of detected Appendix III constituents were entered as reported by the laboratory [non-detections set to Reporting Limit (RL)] and evaluated using ProUCL to determine if the population exhibited a normal, lognormal, or nonparametric distribution. One outlier for total dissolved solids was identified in the background data and removed from the prediction limit data set. Data from the downgradient monitoring wells for the 2023 sampling period were compared to the UPL to identify SSIs over background. For statistical analysis comparing compliance well data to UPLs during the current reporting period, non-detect values were represented as one-half the method detection limit. The results of the analyses, including the UPLs, are provided in **Table 1**.

Chloride was evaluated using a control chart. An upper control limit (UCL) was developed as the mean +4.5 standard deviations using the chloride data for background monitoring wells MW-18(S), MW-19(S), and MW-21(S). Starks (1988); U.S. Environmental Protection Agency (USEPA 2009), and ASTM (2017) suggest using 4.5 standard deviations to develop control limits for groundwater Detection monitoring. **Figure 3** presents the control chart that shows the background mean (12.06 milligrams per liter [mg/L]); UCL (35.51) mg/L; and the baseline and Detection monitoring results for downgradient compliance wells MW-15(S), MW-16(S), MW-17(S), MW-20(S), MW-22(S), and MW-24(S) through October 2023. The results depicted on **Figure 3** indicate that chloride exceeds the UCL in monitoring well MW-24(S) for both 2023 sampling events. By exceeding both the chloride UPL and UCL for two consecutive sampling events, chloride has been confirmed to exhibit an SSI over background at MW-24(S).

The statistical analysis results indicate no Appendix III constituents other than chloride had SSIs over background or statistically significant increasing trends in constituent concentrations as presented in **Table 2**. These statistical results are similar to the 2022 reporting period results. Based on these results, Basin anticipates conducting an ASD investigation to assess the source of the chloride concentrations observed within monitoring well MW-24(S). The results of the ASD will determine whether Detection or Assessment monitoring will be completed at AVS in 2024.

4.0 General Information

The following subsections summarize any problems encountered in the Landfill program through 2023, any resolutions to those problems, if needed, and upcoming actions planned for 2024.

4.1 Program Transitions 2023

Chloride in monitoring well MW-24(S) was verified as an SSI at the end of the 2023 reporting year. Concentrations of chloride at MW-24(S) between May 2021 and October 2023 have been consistently and anomalously high in comparison to surrounding wells. Variance in geochemistry of the Spaer lignite bed could explain elevated chloride concentrations at MW-24(S) so Basin has decided to conduct an ASD investigation in accordance with CFR Section 257.94(e) to confirm the chloride source. Results of the ASD will determine whether the unit will remain in Detection monitoring or transition to Assessment monitoring for the 2024 reporting period. In addition, three monitoring wells were installed downgradient of the expansion area near MW-24(S) in late 2023, with final completion in early 2024. The wells are located a distance of approximately 1,000 to 3,000 feet downgradient of the existing landfill. These new wells will help in the evaluation of MW-24(S) as part of the ASD in 2024 to further define groundwater flow direction and groundwater chemistry in the area.

4.2 Problems Encountered

No problems were encountered during the January-December 2023 reporting period.

4.3 Actions Planned for 2024

Basin plans to conduct an ASD for chloride at well MW-24(S) during the first quarter of the 2024 reporting period. Results from this ASD will affect whether the Detection monitoring program will be continued for the Landfill in 2024 or whether the program will transition to Assessment monitoring. Either monitoring program will include semi-annual groundwater sampling events and the required statistical evaluations.

5.0 Summary and Conclusions

Basin conducted two rounds of CCR groundwater Detection monitoring at the Landfill between January and December 2023. The Detection monitoring sampling results and baseline monitoring results from the three landfill expansion wells sampled between May 2021 and September 2022 were used to establish background groundwater quality for Appendix III constituents in the uppermost aquifer, identify appropriate UPLs and LPLs, and determine whether any Appendix III constituents experienced SSIs downgradient of the CCR unit. The statistical analysis results indicate that the only Appendix III constituent that had an SSI over background was chloride at well MW-24(S). Based on these results, Basin plans to conduct an ASD for chloride in MW-24(S) which will determine whether the Landfill remains in Detection monitoring or transitions to Assessment monitoring for the 2024 reporting period.

6.0 References

AECOM Technical Services, Inc. (AECOM). 2017. CCR Groundwater Monitoring System Report, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. October 2017.

AECOM. 2018a. Sampling and Analysis Plan, CCR Monitoring Program, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2018.

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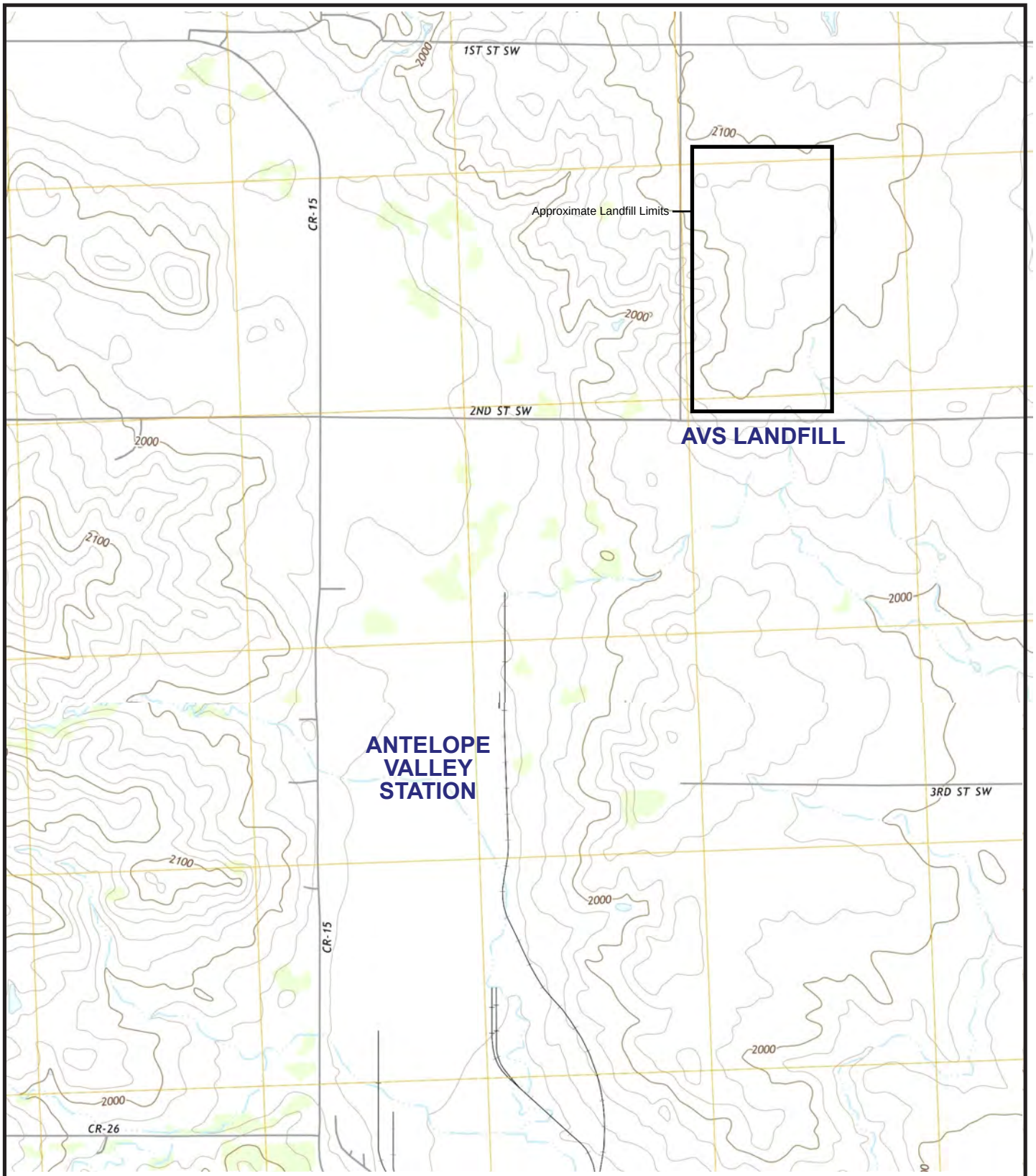
Starks, T. H. 1988. Evaluation of Control Chart Methodologies for Resource Conservation and Recovery Act (RCRA) Waste Sites, U.S. Environmental Protection Agency EPA/600/4-88/040. December. 40 pp.

United States Environmental Protection Agency (USEPA). 2009. Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities Unified Guidance. EPA 530-R-09-007. March 2009. 884 pp.

Figures



0 2,000 4,000

APPROXIMATE SCALE IN FEET

BASE MAP SOURCE: USGS 7½ minute topographic quadrangle maps: Beulah, North Dakota 2014; Beulah NE, North Dakota 2014.

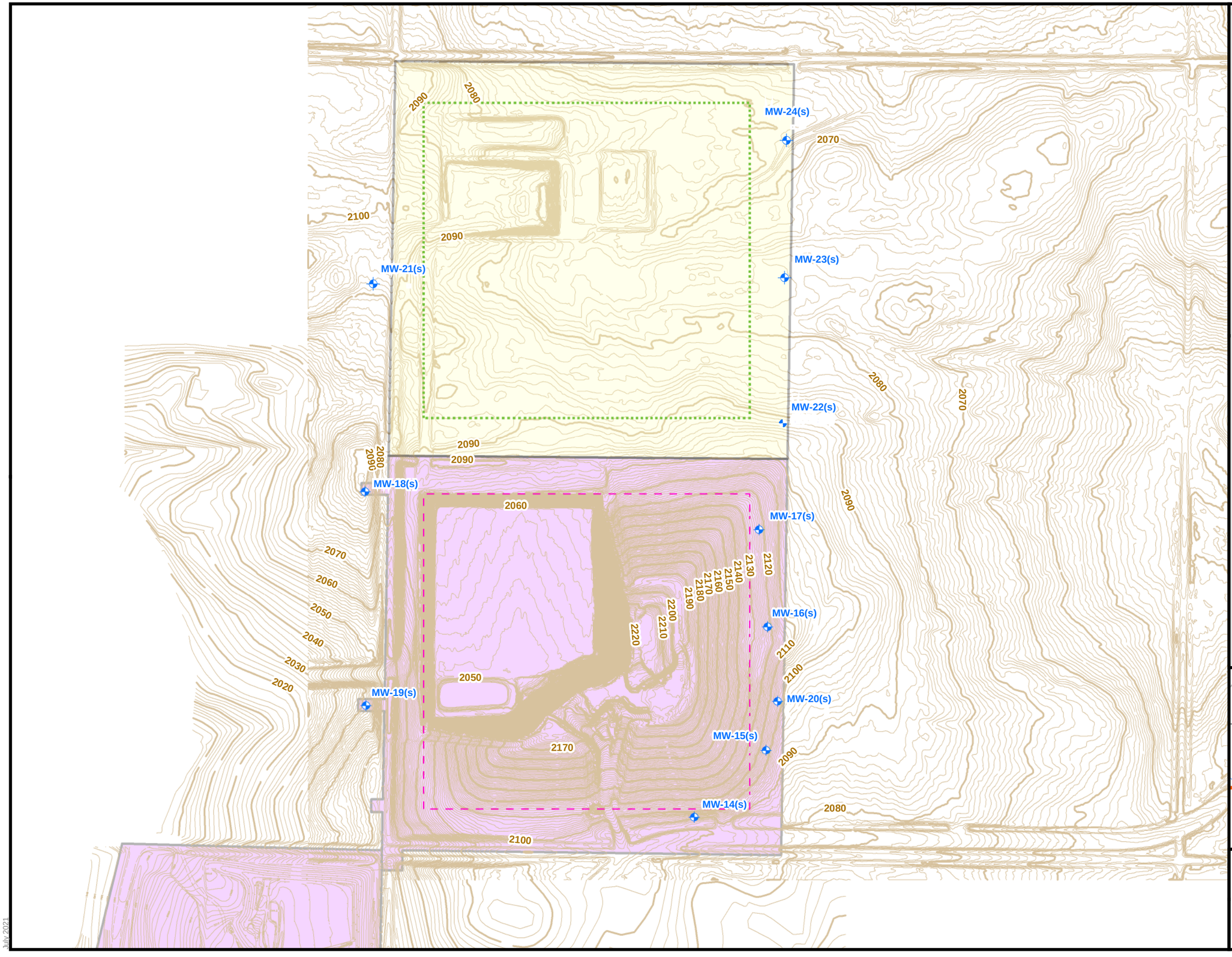
ND

Quadrangle Location

BASIN ELECTRIC POWER COOPERATIVE

FIGURE 1
SITE LOCATION MAP
ANTELOPE VALLEY STATION LANDFILL

AECOM



Legend

- Approximate Landfill Expansion (Permitted)
- Approximate landfill Expansion Limits of Ash
- Limits of Ash
- Monitoring Well
- Surface Contours (2-foot interval)
- Permit Boundary (Historical)

N
W E
S

1 inch = 600 feet

0 600 1200
Feet

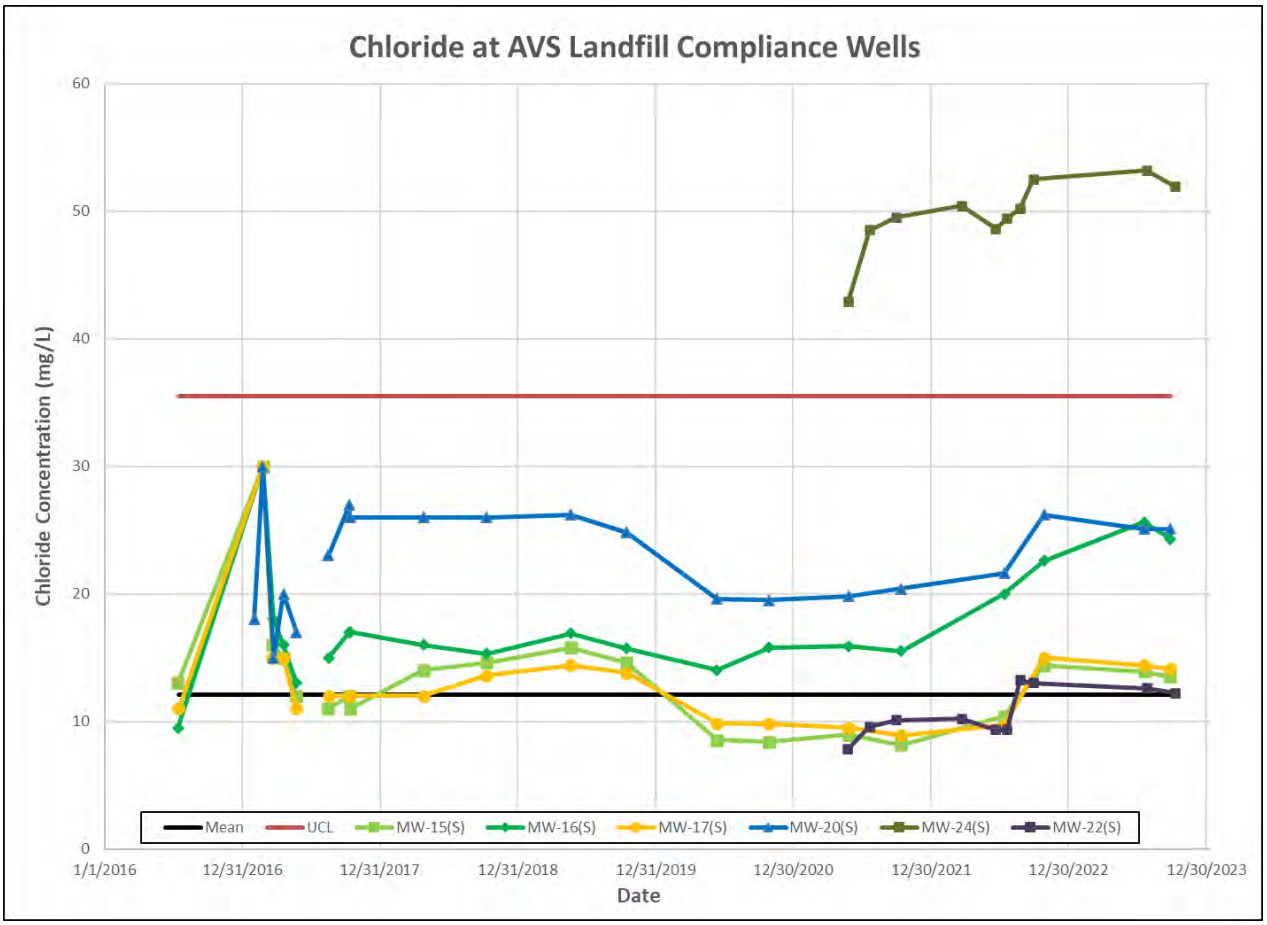
BASIN ELECTRIC POWER COOPERATIVE
FIGURE 2
AVS CCR MONITORING WELL NETWORK
AS OF DECEMBER 2023

JOB NO. 60635022

AECOM

July 2021

Figure 3. Chloride Control Chart 2023
Antelope Valley Station



Notes:
AVS = Antelope Valley Station
mg/l = milligrams per liter

Tables

Table 1. Statistical Analysis Methods and Background Upper Prediction Limits
Antelope Valley Station

Parameter (Units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Method	Background Limit
Boron (mg/L)	31	48	Yes/Yes	Parametric 95% UPL	0.17
Calcium (mg/L)	31	0	No/Yes	Parametric 95% UPL	13
Chloride (mg/L)	31	16	Yes/No	Control Chart 99.9% UCL	35.5
Fluoride (mg/L)	31	16	No/No	Nonparametric 95% UPL	2.5
pH (std units)	35	0	No/No	Nonparametric 95% UPL/LPL	9.95/7.397
Sulfate (mg/L)	31	0	No/No	Nonparametric 95% UPL	783
TDS (mg/L)	31	0	No/No	Nonparametric 95% UPL	2254

Notes:
pH has both an LPL and UPL; all other constituents only have an UPL or UCL
mg/L= milligrams per liter
UCL = Upper Control Limit
LPL = Lower Prediction Limit
UPL = Upper Prediction Limit

Table 2. Statistical Methods Analysis Results
Antelope Valley Station

Well	Location	B	Ca	Cl	F	pH (LPL/UPL)		SO_4	TDS
MW-15(S)	Downgradient								
MW-16(S)	Downgradient								
MW-17(S)	Downgradient								
MW-20(S)	Downgradient								
MW-22(S)	Downgradient								
MW-24(S)	Downgradient			SSI					

Notes:

SSIs determined using interwell upper prediction limits (UPLs) at background monitoring wells MW-18(S), MW-19(S), and MW-21(S)

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Unverified statistically significant increase (SSI) over background UPL or below background LPL for pH

Verified SSI over background UPL or below background LPL for pH

Attachment A
Sampling and Analysis Report
2023 CCR Monitoring Program

2023 Sampling and Analysis Report AVS Landfill CCR Monitoring Program

Antelope Valley Station
Beulah, North Dakota

Basin Electric Power Cooperative

January 31, 2024

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Project 60635022

Table of Contents

Figures

Tables

Appendix

List of Acronyms

AECOM	AECOM Technical Services, Inc.
AVS	Antelope Valley Station
Basin	Basin Electric Power Cooperative
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency

1. Introduction

On behalf of Basin Electric Power Cooperative (Basin), AECOM Technical Services, Inc. (AECOM) prepared this Coal Combustion Residuals (CCR) Groundwater Sampling and Analysis Report for the Basin Antelope Valley Station (AVS) CCR Landfill. The objective of the report is to provide a description of the field and office activities performed in 2023 in support of the AVS CCR Landfill groundwater monitoring program, and to present the results of sampling and analysis of groundwater conducted for the monitoring requirements of the United States Environmental Protection Agency (EPA) CCR rule (Chapter 40 of the Code of Federal Regulations (CFR), Sections 257.90 to 257.98). Specifically, the report presents the data collected for the two groundwater Detection monitoring events conducted in 2023 and provides baseline monitoring data conducted between May 2021 and September 2022 for the landfill expansion area wells.

2. Groundwater Flow

As required by 40 CFR Section 257.93(c), groundwater elevations were measured in each well prior to purging each time groundwater was sampled. The measurements, presented in **Tables 1A and 1B**, were used to create potentiometric surface maps for the uppermost aquifer for the Detection monitoring events. The resulting potentiometric surface maps were used to evaluate the direction and rate of groundwater flow across the CCR unit. **Figure 1** and **Figure 2** represent potentiometric surface maps constructed using measurements taken on July 17, 2023 and from September 25 to October 10, 2023, respectively. The maps show the inferred groundwater flow directions for the CCR unit and the approximate landfill expansion area to the north. These potentiometric maps illustrate groundwater flow patterns that are generally consistent with the patterns observed during previous monitoring events. Calculated groundwater flow velocities for the original landfill cell to the south and the expansion landfill to the north are summarized in **Table 2**.

Based on the groundwater flow conditions documented in this chapter, the relative function of the monitoring wells employed in the AVS CCR Landfill groundwater monitoring system and baseline monitoring landfill expansion wells are as follows:

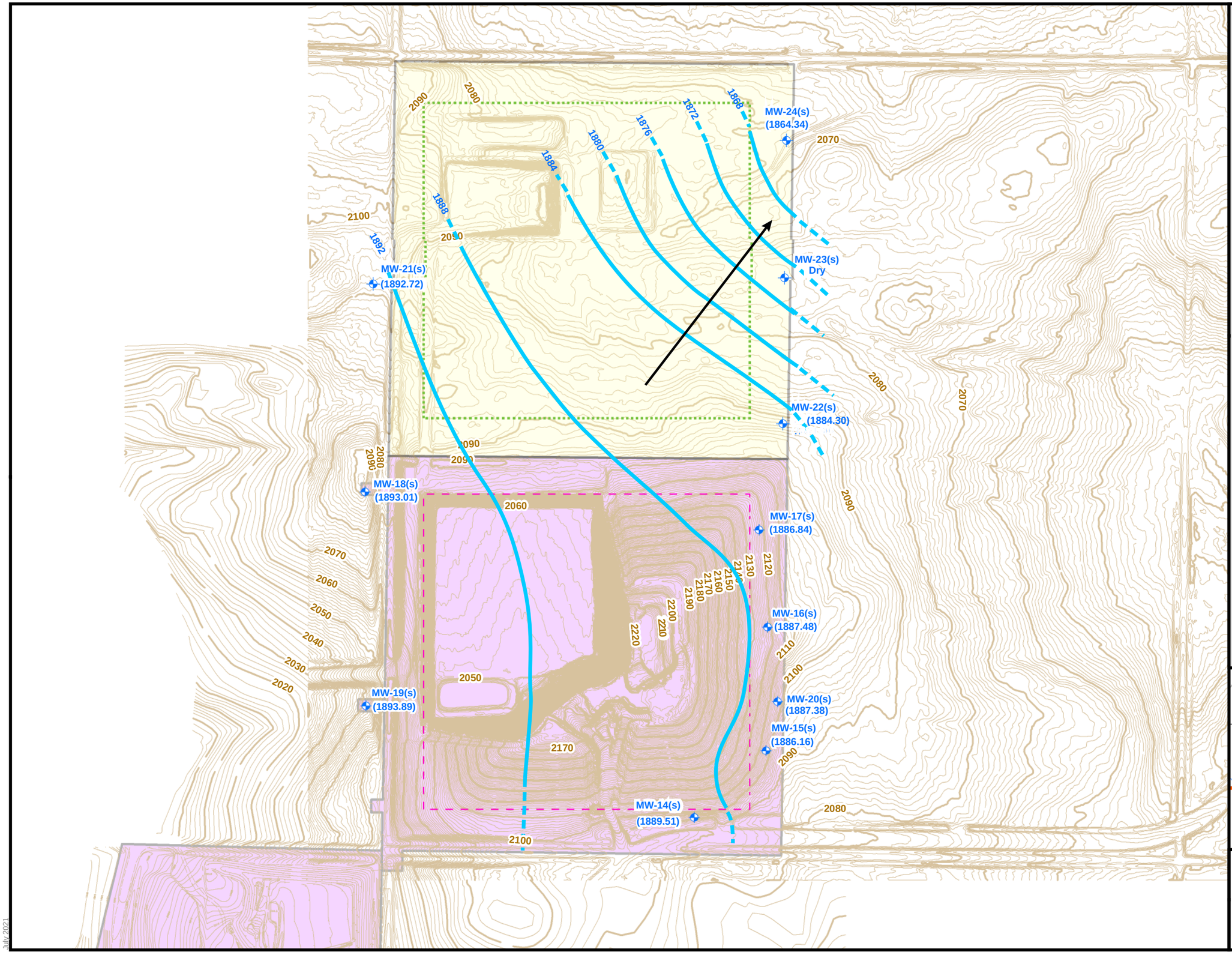
CCR unit	Background wells	Downgradient wells
Active Landfill	MW-18(S), MW-19(S)	MW15(S), MW-16(S), MW-17(S), MW-20(S)
Landfill Expansion Area	MW-21(S)	MW-22(S) and MW-24(S)

Monitoring well MW-14(S) is being excluded from the groundwater monitoring network due to insufficient water production to obtain a representative sample. However, it remains in place for optional collection of groundwater level measurements for potential use in potentiometric mapping as appropriate. A groundwater level measurement at MW-14(S) was not recorded in September or October 2023. Monitoring well MW-23(S) is excluded from the baseline monitoring network, because it was dry during sampling events in 2021, 2022, and 2023.

3. Groundwater Quality

The analytical testing laboratory provided reports presenting the results of laboratory analysis for each Detection monitoring event and the expansion baseline monitoring events. These laboratory reports are included in the operating record, are presented in **Appendix A**, and were reviewed for completeness against the project-required methods and the chain-of-custody forms. Laboratory reports were also reviewed for holding times, and for appropriate flagging based on the quality assurance/quality control testing results provided by the laboratory. The Appendix III results for the landfill CCR unit Detection monitoring events were compiled into a summary form as presented in **Table 3**. The baseline monitoring results for Appendix III and Appendix IV data for the three landfill expansion wells (MW-21(S) ,MW-22(S), and MW-24(S)) are summarized in **Table 4**.

Figures



Legend

- Approximate Landfill Expansion (Permitted)
- Approximate landfill Expansion Limits of Ash
- Limits of Ash
- Monitoring Well
- Surface Contours (2-foot interval)
- Permit Boundary (Historical)
- Piezometric Surface Contour Dashed where inferred (4-foot interval)
- Groundwater Flow Direction

Note: Groundwater elevations were obtained on July 17, 2023.

N
W E
S

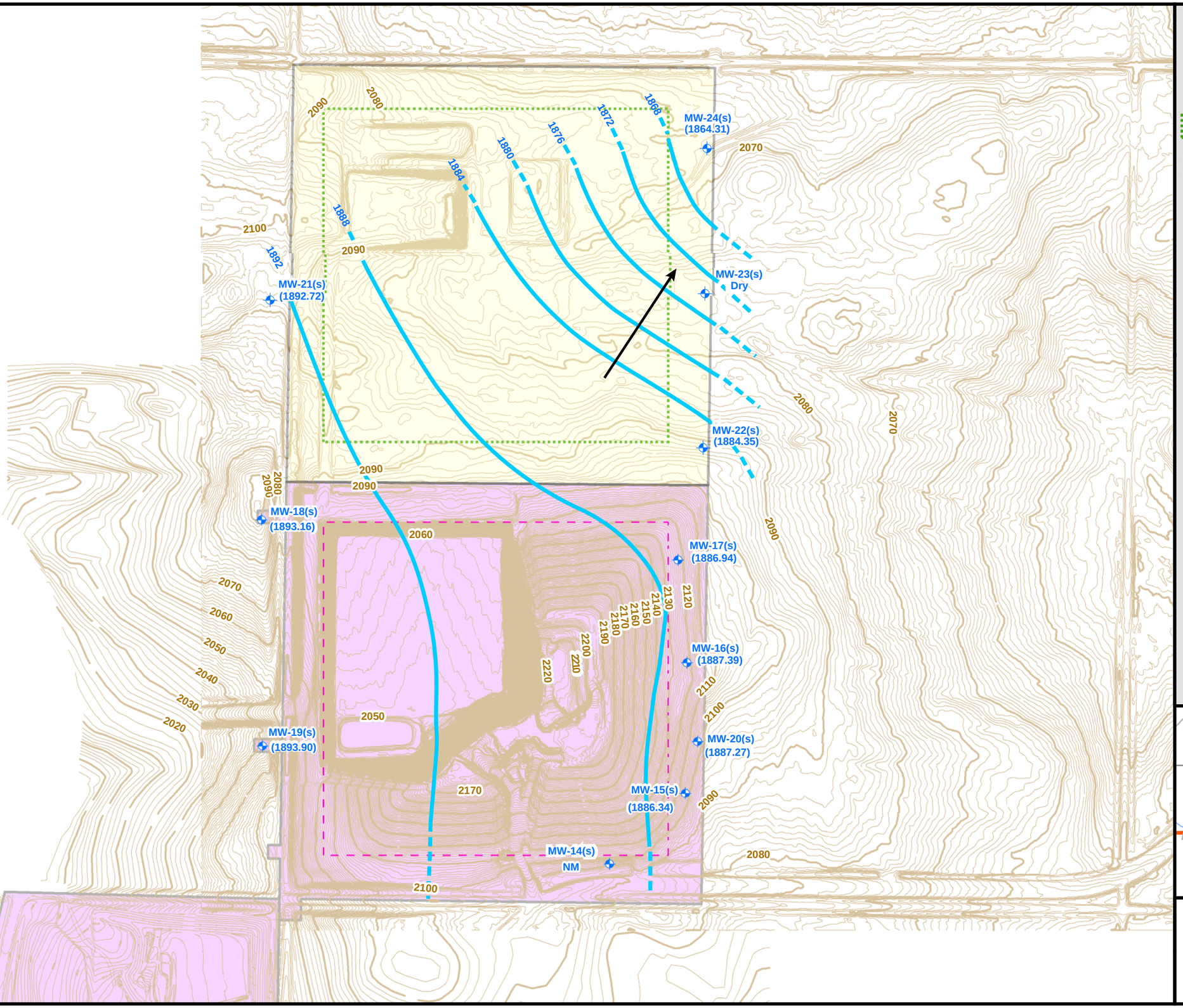
0 600 1200
Feet

BASIN ELECTRIC POWER COOPERATIVE
FIGURE 1
POTENTIOMETRIC SURFACE MAP JULY 2023

JOB NO. 60635022

AECOM

July 2021



Legend

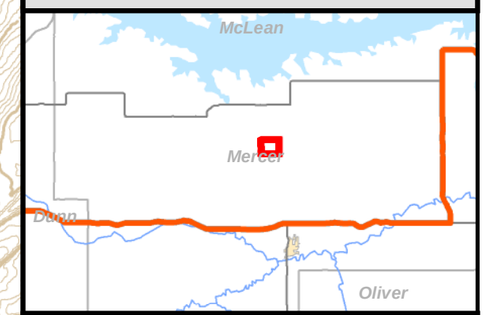
- Approximate Landfill Expansion (Permitted)
- Approximate landfill Expansion Limits of Ash
- Limits of Ash
- Monitoring Well
- Surface Contours (2-foot interval)
- Permit Boundary (Historical)
- Piezometric Surface Contour Dashed where inferred (4-foot interval)
- Groundwater Flow Direction

Note:
Groundwater elevations were obtained in September and October 2023.

NM = not measured

N
W E
S

0 600 1200
Feet



BASIN ELECTRIC POWER COOPERATIVE
FIGURE 2
POTENTIOMETRIC SURFACE MAP
SEPTEMBER AND OCTOBER 2023

JOB NO. 60635022

AECOM

July 2021

Tables

Table 1A
July 2023 Groundwater Monitoring Water Levels and Elevations
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

Active Landfill			
	Reference Elevation	July 17, 2023	Groundwater
	Top of Casing	Depth to Water	Elevation
Well ID	(ft amsl)	(ft btoiwc)	(ft amsl)
MW-14(s)	2093.41	203.9	1889.51
MW-15(s)	2104.77	218.61	1886.16
MW-16(s)	2123.59	236.11	1887.48
MW-17(s)	2124.89	238.05	1886.84
MW-18(s)	2091.60	198.59	1893.01
MW-19(s)	2042.56	148.67	1893.89
MW-20(s)	2107.47	220.09	1887.38
MW-21(s)	2094.72	202.00	1892.72
MW-22(s)	2093.90	209.6	1884.30
MW-23(s)	2080.16	Dry	Dry
MW-24(s)	2070.74	206.4	1864.34

ft btoiwc = feet below top of inner well casing

ft amsl = feet above mean sea level (Vertical Datum NGVD29)

Table 1B
September/October 2023 Groundwater Monitoring Water Levels and Elevations
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

Active Landfill				
		Reference Elevation		Groundwater
		Top of Casing	Depth to Water	Elevation
Well ID	Date	(ft amsl)	(ft btoiwc)	(ft amsl)
MW-14(s)	--	2093.41	Not measured	Not measured
MW-15(s)	9/25/2023	2104.77	218.43	1886.34
MW-16(s)	9/25/2023	2123.59	236.20	1887.39
MW-17(s)	9/25/2023	2124.89	237.95	1886.94
MW-18(s)	9/26/2023	2091.60	198.44	1893.16
MW-19(s)	9/26/2023	2042.56	148.66	1893.90
MW-20(s)	9/26/2023	2107.47	220.20	1887.27
MW-21(s)	10/10/2023	2094.72	202.00	1892.72
MW-22(s)	10/10/2023	2093.90	209.55	1884.35
MW-23(s)	10/10/2023	2080.16	Dry	Dry
MW-24(s)	10/10/2023	2070.74	206.43	1864.31

ft btoiwc = feet below top of inner well casing

ft amsl = feet above mean sea level (Vertical Datum NGVD29)

TABLE 2

GROUNDWATER GRADIENT AND SEEPAGE VELOCITY ESTIMATE
CCR PROGRAM MONITORING WELLS
ANTELOPE VALLEY STATION CCR LANDFILL – BEULAH, NORTH DAKOTA

Date of event	Landfill Cell	d_l (ft)	d_h (ft)	i (ft/ft)	n_e	K (ft/day)	v_s (ft/day)
7/13/2016	South	1050	3	2.86E-03	0.185	0.234	3.62E-03
2/22/2017	South	1140	3	2.63E-03	0.185	0.234	3.33E-03
3/21/2017	South	1020	2	1.96E-03	0.185	0.234	2.48E-03
4/19/2017	South	1050	3	2.86E-03	0.185	0.234	3.62E-03
5/23/2017	South	1230	3	2.44E-03	0.185	0.234	3.09E-03
6/28/2017	South	1020	3	2.94E-03	0.185	0.234	3.72E-03
7/24/2017	South	1110	3	2.70E-03	0.185	0.234	3.42E-03
8/16/2017	South	1410	3	2.13E-03	0.185	0.234	2.69E-03
4/25/2018	South	1260	3	2.38E-03	0.185	0.234	3.01E-03
10/10/2018	South	1245	3	2.41E-03	0.185	0.234	3.05E-03
5/21/2019	South	1425	3	2.11E-03	0.185	0.234	2.66E-03
10/16/2019	South	1500	3	2.00E-03	0.185	0.234	2.53E-03
6/10/2020	South	1170	2	1.71E-03	0.185	0.234	2.16E-03
10/27/2020	South	1110	2	1.80E-03	0.185	0.234	2.28E-03
5/24/2021	South	1600	4	2.5E-03	0.185	0.234	3.16E-03
10/11/2021	South	1650	4	2.4E-03	0.185	0.234	3.07E-03
7/12/2022	South	1500	4	2.67E-03	0.185	0.234	3.37E-03
11/1/2022	South	900	4	4.44E-03	0.185	0.234	5.62E-03
7/17/2023	South	3070	6.51	2.12E-03	0.185	0.234	2.68E-03
10/10/2023	South	3070	6.63	2.12E-03	0.185	0.234	2.73E-03
7/17/2023	North	3120	27.66	8.87E-03	0.185	0.234	1.12E-02
10/10/2023	North	3120	27.69	8.88E-03	0.185	0.234	1.12E-02

d_l = Horizontal separation between upgradient and downgradient locations perpendicular to potentiometric contours

d_h = Change in hydraulic head between upgradient and downgradient locations

i = Hydraulic gradient (change in elevation over distance)

n_e = Site average porosity of 18.5%

K = Site average hydraulic conductivity of 2.34 E-01 ft/day from slug and pumping tests at site

v_s = Seepage velocity (ft/day)

Hydraulic Gradient Governing Equation[1] – $$i = -dh/dl$$

Seepage Velocity Governing Equation[2] – $$v_s = -K * i / n_e$$

Table 3
2023 CCR Monitoring Network Analytical Results
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

				Appendix III Parameters						
			Analytical Method	Field Measure	SM2540C	SW6010C	SW6010C	SW9056A	SW9056A	SW9056A
			Chemical Name	pH	TDS	Boron	Calcium	Chloride	Fluoride	Sulfate
			Unit	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Event	Well ID	Sample Date	Sample Type							
2023_07_July	MW-15(S)	7/18/2023	N	8.00	1860	< 0.1	4.14	13.9	1.39	442
2023_26_Sep	MW-15(S)	9/26/2023	N	7.94	1880	0.12	3.70	13.5	1.43	400
2023_07_July	MW-16(S)	7/18/2023	N	8.83	973	0.12	2.11	25.6	2.42	83.7
2023_26_Sep	MW-16(S)	9/26/2023	N	8.31	1120	0.017	2.02	24.3	2.06	76.7
2023_07_July	MW-17(S)	7/18/2023	N	7.97	1700	0.10	3.95	14.4	1.48	269
2023_26_Sep	MW-17(S)	9/26/2023	N	7.86	1330	0.13	3.60	14.1	1.52	212
2023_07_July	MW-18(S)	7/18/2023	N	9.16	1730	< 0.1	4.90	9.2	1.24	494
2023_26_Sep	MW-18(S)	9/26/2023	N	9.19	1780	0.10	4.32	9.1	1.26	448
2023_07_July	MW-19(S)	7/18/2023	N	8.07	2100	0.10	4.29	18.9	0.66	768
2023_07_July	MW-19(S)	7/18/2023	FD	8.07	2110	0.10	4.26	18.4	0.69	774
2023_26_Sep	MW-19(S)	9/26/2023	N	7.96	2160	0.13	3.94	18.3	0.69	756
2023_26_Sep	MW-19(S)	9/26/2023	FD	7.96	2180	0.13	3.97	18.3	0.72	710
2023_07_July	MW-20(S)	7/18/2023	N	7.96	1800	0.10	4.68	25.1	1.21	70.4
2023_26_Sep	MW-20(S)	9/26/2023	N	7.93	1860	0.13	4.44	25.1	1.25	63.1
2023_07_July	MW-21(S)	7/25/2023	N	7.93	2600	0.11	5.59	18.3	1.36	580
2023_11_Oct	MW-21(S)	10/11/2023	N	7.93	2140	0.13	4.77	18.1	1.35	536
2023_07_July	MW-22(S)	7/26/2023	N	8.17	1650	0.12	2.76	12.6	1.60	280
2023_11_Oct	MW-22(S)	10/11/2023	N	8.10	1640	0.14	2.75	12.2	1.62	191
2023_07_July	MW-24(S)	7/25/2023	N	8.09	1970	0.10	4.64	53.2	1.38	53.3
2023_11_Oct	MW-24(S)	10/11/2023	N	8.05	1960	0.11	4.34	51.9	1.44	56.1
2023_11_Oct	MW-24(S)	10/11/2023	FD	8.05	2010	0.11	4.42	50.8	1.31	55.1

Notes:
< = less than reporting limit shown, non-detect value
CCR = coal combustion residual
FD = field duplicate
mg/L = milligrams per liter
N = parent sample
SU = standard unit
T = total

Table 4
Landfill Expansion Baseline Monitoring Analytical Results
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

				Appendix III Parameters							Appendix IV Parameters													
			Analytical Method	Field Measure	SM2540C	SW6010C	SW6010C	SW9056A	SW9056A	SW9056A	SW6020A	SW6020A	SW6020A	SW6020A	SW6020A	SW6020A	SW6020A	SW6020A	7470A	SW6020A	Ra226_Ra228	SW6020A	SW6020A
			Chemical Name	pH	TDS	Boron	Calcium	Chloride	Fluoride	Sulfate	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Radium 226/228	Selenium	Thallium
			Unit	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	mg/L	mg/L
Event	Well ID	Sample Date	Sample Type																					
Baseline 1	MW-21(S)	5/26/2021	N	7.83	2240	0.155	8.62	13.7	1.54	617	< 0.002	< 0.005	0.0535	< 0.001	< 0.001	< 0.002	0.00102	< 0.001	0.0327	<0.0002	0.00870	0.937	< 0.005	< 0.001
Baseline 2	MW-21(S)	7/21/2021	N	7.90	2270	0.141	6.60	16.0	1.20	618	< 0.002	< 0.005	0.0508	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0426	<0.0002	0.00582	0.813	< 0.005	< 0.001
Baseline 3	MW-21(S)	9/29/2021	N	7.90	2160	0.151	6.27	16.6	1.34	719	< 0.002	< 0.005	0.0523	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0411	<0.0002	0.00527	1.10	< 0.005	< 0.001
Baseline 3	MW-21(S)	9/29/2021	FD	7.90	2690	0.154	2.67	16.9	1.32	769	< 0.002	< 0.005	0.0505	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0515	<0.0002	0.00567	0.670	< 0.005	< 0.001
Baseline 4	MW-21(S)	3/22/2022	N	8.13	2160	0.156	6.18	17.1	1.20	642	< 0.002	< 0.005	0.0479	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0428	<0.0002	0.00331	0.629	< 0.005	< 0.001
Baseline 5	MW-21(S)	5/26/2022	N	7.63	--	0.14	5.25	--	--	--	< 0.002	< 0.005	0.0514	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0431	<0.0002	0.00307	0.3405	< 0.005	< 0.001
Baseline 5 Resample	MW-21(S)	6/20/2022	N	--	2130	--	--	16.2	5.72	625	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baseline 6	MW-21(S)	7/19/2022	N	8.08	2170	0.136	4.71	16.1	4.97	624	< 0.002	< 0.005	0.0455	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0499	<0.0002	< 0.002	1.105	< 0.005	< 0.001
Baseline 7	MW-21(S)	8/24/2022	N	8.03	2220	0.14	5.43	18.9	1.49	618	< 0.001	< 0.002	0.0465	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.0481	< 0.0002	0.0028	0.198	< 0.005	< 0.0005
Baseline 8	MW-21(S)	9/28/2022	N	8.00	2200	0.14	5.12	18.5	1.41	581	< 0.001	< 0.002	0.0484	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.0460	< 0.0002	< 0.002	0.504	< 0.005	< 0.0005
Baseline 1	MW-22(S)	5/24/2021	N	7.99	1640 H	0.147	2.9	7.84	1.69	228	< 0.002	< 0.005	0.0533	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0461	< 0.0002	< 0.002	0.374	< 0.005	< 0.001
Baseline 2	MW-22(S)	7/21/2021	N	8.11	1660	0.149	2.74	9.58	1.50	253	< 0.002	< 0.005	0.0550	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0551	< 0.0002	< 0.002	0.521	< 0.005	< 0.001
Baseline 3	MW-22(S)	9/29/2021	N	7.97	1610	0.152	6.47	10.1	1.61	260	< 0.002	< 0.005	0.0532	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0402	< 0.0002	< 0.002	0.4445	< 0.005	< 0.001
Baseline 4	MW-22(S)	3/22/2022	N	8.27	1630	0.159	4.03	10.2	1.51	230	< 0.002	< 0.005	0.0689	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0523	< 0.0002	< 0.002	0.3595	< 0.005	< 0.001
Baseline 5	MW-22(S)	5/26/2022	N	7.81	--	0.143	2.43	--	--	--	< 0.002	< 0.005	0.0646	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0471	< 0.0002	< 0.002	0.408	< 0.005	< 0.001
Baseline 5 Resample	MW-22(S)	6/20/2022	N	7.87	1600	--	--	9.34	4.25	251	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baseline 6	MW-22(S)	7/19/2022	N	8.25	1580	0.141	2.59	9.32	4.01	253	< 0.002	< 0.005	0.0598	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.0499	< 0.0002	< 0.002	0.845	< 0.005	< 0.001
Baseline 7	MW-22(S)	8/24/2022	N	8.22	1660	0.16	2.72	13.2	1.78	253	< 0.001	< 0.002	0.0591	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.0478	< 0.0002	< 0.002	1.61	< 0.005	< 0.0005
Baseline 7	MW-22(S)	8/24/2022	FD	8.22	1640	0.15	2.85	13.3	1.76	240	< 0.001	< 0.002	0.0587	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.0472	< 0.0002	< 0.002	1.93	< 0.005	< 0.0005
Baseline 8	MW-22(S)	9/28/2022	N	8.20	1630	0.14	2.66	13.0	1.69	224	< 0.001	< 0.002	0.0602	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.0442	< 0.0002	< 0.002	0.778	< 0.005	< 0.0005
Baseline 1	MW-24(S)	5/25/2021	N	7.80	2040	0.129	6.08	42.9	1.59	35.2	< 0.002	< 0.005	0.0604	< 0.001	< 0.001	< 0.002	0.00128	< 0.001	0.0779	< 0.0002	0.0138	0.770	< 0.005	< 0.001
Baseline 2	MW-24(S)	7/21/2021	N	8.14	2040	0.12	5.62	48.5	1.22	42.1	0.00267	< 0.005	0.0536	< 0.001	< 0.001	< 0.002	0.00133	< 0.001	0.0793	< 0.0002	0.0132	3.34	< 0.005	< 0.001
Baseline 3	MW-24(S)	9/29/2021	N	8.03	1610	0.134	5.08	49.5	1.33	45.3	< 0.002	< 0.005	0.0712	< 0.001	< 0.001	< 0.002	0.00128	< 0.001	0.0878	< 0.0002	0.0103	0.565	< 0.005	< 0.001
Baseline 4	MW-24(S)	3/22/2022	N	8.23	1840	0.135	5.42	50.4	1.23	44	< 0.002	< 0.005	0.0812	< 0.001	< 0.001	0.00320	0.00151	< 0.001	0.0626	< 0.0002	0.0106	0.749	< 0.005	< 0.001
Baseline 5	MW-24(S)	5/26/2022	N	7.79	--	0.125	5.07	--	--	--	< 0.002	< 0.005	0.0827	< 0.001	< 0.001	0.00354	0.00145	< 0.001	0.0613	< 0.0002	0.0115	1.20	< 0.005	< 0.001
Baseline 5 Resample	MW-24(S)	6/20/2022	N	7.85	1930	--	--	48.6	6.04	43.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baseline 6	MW-24(S)	7/19/2022	N	8.15	1960	0.123	4.71	49.4	4.9	44	< 0.002	< 0.005	0.0794	< 0.001	< 0.001	0.00299	0.00145	< 0.001	0.0588	< 0.0002	0.00916	0.95	< 0.005	< 0.001
Baseline 7	MW-24(S)	8/24/2022	N	8.15	2020	0.16	5.11	50.2	1.47	75.1	< 0.001	0.0023	0.0750	< 0.0005	< 0.0005	0.0030	< 0.002	0.0005	0.0525	< 0.0002	0.0119	3.28	< 0.005	< 0.0005
Baseline 8	MW-24(S)	9/28/2022	N	8.14	1980	0.12	5.44	52.5	1.41	52.6	< 0.001	0.0022	0.0868	< 0.0005	< 0.0005	0.0052	0.0020	0.0008	0.0478	< 0.0002	0.0102	0.569	< 0.005	< 0.0005
Baseline 8	MW-24(S)	9/28/2022	FD	8.14	1990	0.12	5.40	51.9	1.40	53.3	< 0.001	0.0020	0.0862	< 0.0005	< 0.0005	0.0053	< 0.002	0.0008	0.0476	< 0.0002	0.0100	0.653	< 0.005	< 0.0005

Notes:
< = less than reporting limit shown, non-detect value
CCR = coal combustion residual
FD = field duplicate
mg/L = milligrams per liter
N = parent sample
-- = data not available
N/A = not applicable
pCi/L = picoCuries per liter
SU = standard unit
T = total
TDS = total dissolved solids

Appendix A: Laboratory Reports

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS CCR Wells (21411) **PO:** 790708-01

Mark Dihle
Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411001 **Date Collected:** 07/18/2023 11:45 **Matrix:** Groundwater
Sample ID: MW 15S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**442**	mg/L	25	5	07/26/2023 11:16	07/26/2023 11:16	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	<0.1	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:14	SLZ	
Calcium	**4.14**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:03	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**13.9**	mg/L	2.0	1	07/25/2023 11:15	07/25/2023 11:15	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.39**	mg/L	0.1	1	07/20/2023 11:33	07/20/2023 11:33	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1860**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411002 **Date Collected:** 07/18/2023 12:15 **Matrix:** Groundwater
Sample ID: MW 16S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**83.7**	mg/L	5	1	07/26/2023 11:26	07/26/2023 11:26	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.12**	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:15	SLZ	
Calcium	**2.11**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:04	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**25.6**	mg/L	2.0	1	07/25/2023 11:23	07/25/2023 11:23	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**2.42**	mg/L	0.1	1	07/20/2023 11:52	07/20/2023 11:52	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**973**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411003 **Date Collected:** 07/18/2023 13:10 **Matrix:** Groundwater
Sample ID: MW 17S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**269**	mg/L	5	1	07/26/2023 11:27	07/26/2023 11:27	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:17	SLZ	
Calcium	**3.95**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:06	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**14.4**	mg/L	2.0	1	07/25/2023 11:18	07/25/2023 11:18	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.48**	mg/L	0.1	1	07/20/2023 11:58	07/20/2023 11:58	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1700**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411004 **Date Collected:** 07/18/2023 11:22 **Matrix:** Groundwater
Sample ID: MW 18S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**494**	mg/L	25	5	07/26/2023 11:19	07/26/2023 11:19	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	<0.1	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:17	SLZ	
Calcium	**4.90**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:07	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**9.2**	mg/L	2.0	1	07/25/2023 11:19	07/25/2023 11:19	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.24**	mg/L	0.1	1	07/20/2023 12:04	07/20/2023 12:04	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1730**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411005 **Date Collected:** 07/18/2023 09:28 **Matrix:** Groundwater
Sample ID: MW 19S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**768**	mg/L	50	10	07/26/2023 11:20	07/26/2023 11:20	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:18	SLZ	
Calcium	**4.29**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:08	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**18.4**	mg/L	2.0	1	07/25/2023 11:28	07/25/2023 11:28	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**0.66**	mg/L	0.1	1	07/20/2023 12:09	07/20/2023 12:09	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**2100**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411006 **Date Collected:** 07/18/2023 13:40 **Matrix:** Groundwater
Sample ID: MW 20S **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**70.4**	mg/L	5	1	07/26/2023 11:28	07/26/2023 11:28	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:19	SLZ	
Calcium	**4.68**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:09	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**25.1**	mg/L	2.0	1	07/25/2023 11:30	07/25/2023 11:30	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.21**	mg/L	0.1	1	07/20/2023 12:15	07/20/2023 12:15	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1800**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 21411007 **Date Collected:** 07/18/2023 09:28 **Matrix:** Groundwater
Sample ID: DUP **Date Received:** 07/19/2023 15:32 **Collector:** Client

Temp @ Receipt (C): 5.0

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**774**	mg/L	50	10	07/26/2023 11:22	07/26/2023 11:22	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/19/2023 17:33	07/24/2023 13:19	SLZ	
Calcium	**4.26**	mg/L	1	1	07/19/2023 17:33	07/21/2023 11:10	SLZ	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**18.4**	mg/L	2.0	1	07/25/2023 11:31	07/25/2023 11:31	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**0.69**	mg/L	0.1	1	07/20/2023 12:21	07/20/2023 12:21	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**2110**	mg/L	10	1	07/20/2023 15:44	07/20/2023 15:44	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

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WO: 21411

Chain of Custody

Page 1 of 1

Work Order # (Lab Use Only)

Company Name and Address: Basin Electric Power Coop., Leland Olds Station, 3901 Highway 200A, Stanton, ND 58571	Account # 2040	Phone # 701-745-7238 701-557-5488
Billing Address (indicate if different from above): Attn: AVS Liabilities	Contact: Mark Dihle	Emails: mdihle@bepc.com aknutson@bepc.com
	Name of Sampler: mls	jermey.hurshman@aecom.com jason.lach@aecom.com
	Quote Number	Date Submitted: 7/19/2023
	Project Name/Number: AVS CCR Wells	Purchase Order #: 790708-01

Lab Use Only Lab	Sample ID	Sample Matrix (GW - Groundwater)	Date Sampled	Time Sampled	Bottles	Y/N	Analysis Required
001	MW 15S	GW	7/18/2023	1145	2	N	B, Ca, Cl, F, SO_4, TDS
002	MW 16S	GW	7/18/2023	1215	2	N	B, Ca, Cl, F, SO_4, TDS
003	MW 17S	GW	7/18/2023	1310	2	N	B, Ca, Cl, F, SO_4, TDS
004	MW 18S	GW	7/18/2023	1122	2	N	B, Ca, Cl, F, SO_4, TDS
005	MW 19S	GW	7/18/2023	928	2	N	B, Ca, Cl, F, SO_4, TDS
006	MW 20S	GW	7/18/2023	1340	2	N	B, Ca, Cl, F, SO_4, TDS
007	DUP	GW	7/18/2023	928	2	N	B, Ca, Cl, F, SO_4, TDS

Comments:

Transferred by	Date	Time	Received by	Date	Time	Temp	ROI	Therm. #
MILLENNIUM EXPRESS				7/19/23	1532	5.0C	Y (N)	TM155
2.				7/19/23			Y / N	

Please submit the top copy with your samples. We will return the completed original with your results.

Form # 80-910005-1 See above for page number Effective Date: 26 Aug 2022

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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS CCR Wells (22206) **PO:** 790708-01

Mark Dihle
Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206001 **Date Collected:** 07/25/2023 10:40 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**580**	mg/L	25	5	08/02/2023 14:40	08/02/2023 14:40	AMC	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Mercury	<0.0002	mg/L	0.0002	1	07/31/2023 12:41	08/02/2023 08:31	MDE	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.11**	mg/L	0.1	1	07/28/2023 17:18	08/04/2023 12:00	SLZ	
Calcium	**5.59**	mg/L	1	1	07/28/2023 17:18	08/01/2023 10:43	SLZ	
Lithium	**0.0402**	mg/L	0.02	1	07/28/2023 17:18	08/04/2023 14:54	SLZ	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Antimony	<0.001	mg/L	0.001	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Arsenic	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Barium	**0.0425**	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Beryllium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/08/2023 09:35	MDE	
Cadmium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Chromium	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Cobalt	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Lead	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Molybdenum	**0.0023**	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Selenium	<0.005	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 15:24	MDE	
Thallium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:24	MDE	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206001 **Date Collected:** 07/25/2023 10:40 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**18.3**	mg/L	2.0	1	08/01/2023 13:35	08/01/2023 13:35	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.36**	mg/L	0.1	1	07/31/2023 14:07	07/31/2023 14:07	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**2160**	mg/L	10	1	07/28/2023 14:27	07/28/2023 14:27	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206002 **Date Collected:** 07/26/2023 10:45 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**208**	mg/L	25	5	08/02/2023 14:29	08/02/2023 14:29	AMC	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Mercury	<0.0002	mg/L	0.0002	1	07/31/2023 12:41	08/02/2023 08:31	MDE	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.12**	mg/L	0.1	1	07/28/2023 17:18	08/04/2023 12:05	SLZ	
Calcium	**2.76**	mg/L	1	1	07/28/2023 17:18	08/01/2023 10:44	SLZ	
Lithium	**0.0459**	mg/L	0.02	1	07/28/2023 17:18	08/04/2023 14:58	SLZ	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Antimony	<0.001	mg/L	0.001	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Arsenic	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Barium	**0.0557**	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Beryllium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/08/2023 09:27	MDE	
Cadmium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Chromium	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Cobalt	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Lead	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Molybdenum	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Selenium	<0.005	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 12:22	MDE	
Thallium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 12:22	MDE	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206002 **Date Collected:** 07/26/2023 10:45 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**12.6**	mg/L	2.0	1	08/01/2023 13:36	08/01/2023 13:36	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.60**	mg/L	0.1	1	07/31/2023 14:15	07/31/2023 14:15	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1650**	mg/L	10	1	07/28/2023 14:27	07/28/2023 14:27	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206003 **Date Collected:** 07/25/2023 12:30 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**53.3**	mg/L	5	1	08/02/2023 14:41	08/02/2023 14:41	AMC	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Mercury	<0.0002	mg/L	0.0002	1	07/31/2023 12:41	08/02/2023 08:31	MDE	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/28/2023 17:18	08/04/2023 12:07	SLZ	
Calcium	**4.64**	mg/L	1	1	07/28/2023 17:18	08/01/2023 10:45	SLZ	
Lithium	**0.0541**	mg/L	0.02	1	07/28/2023 17:18	08/04/2023 15:00	SLZ	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Antimony	<0.001	mg/L	0.001	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Arsenic	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Barium	**0.0892**	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Beryllium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/08/2023 09:30	MDE	
Cadmium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Chromium	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Cobalt	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Lead	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Molybdenum	**0.0075**	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Selenium	<0.005	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 15:56	MDE	
Thallium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 15:56	MDE	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206003 **Date Collected:** 07/25/2023 12:30 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**53.2**	mg/L	2.0	1	08/01/2023 13:37	08/01/2023 13:37	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.38**	mg/L	0.1	1	07/31/2023 14:20	07/31/2023 14:20	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1970**	mg/L	10	1	07/28/2023 14:27	07/28/2023 14:27	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206004 **Date Collected:** 07/25/2023 12:30 **Matrix:** Groundwater
Sample ID: DUP **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**52.3**	mg/L	5	1	08/02/2023 14:42	08/02/2023 14:42	AMC	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Mercury	<0.0002	mg/L	0.0002	1	07/31/2023 12:41	08/02/2023 08:31	MDE	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	07/28/2023 17:18	08/04/2023 12:09	SLZ	
Calcium	**4.60**	mg/L	1	1	07/28/2023 17:18	08/01/2023 10:47	SLZ	
Lithium	**0.0560**	mg/L	0.02	1	07/28/2023 17:18	08/04/2023 15:01	SLZ	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Antimony	<0.001	mg/L	0.001	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Arsenic	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Barium	**0.0917**	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Beryllium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/08/2023 09:32	MDE	
Cadmium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Chromium	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Cobalt	<0.002	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Lead	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Molybdenum	**0.0078**	mg/L	0.002	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Selenium	<0.005	mg/L	0.005	5	07/28/2023 17:18	08/07/2023 16:01	MDE	
Thallium	<0.0005	mg/L	0.0005	5	07/28/2023 17:18	08/07/2023 16:01	MDE	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 22206004 **Date Collected:** 07/25/2023 12:30 **Matrix:** Groundwater
Sample ID: DUP **Date Received:** 07/27/2023 15:09 **Collector:** Client

Temp @ Receipt (C): 5.3

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**52.6**	mg/L	2.0	1	08/01/2023 13:48	08/01/2023 13:48	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.38**	mg/L	0.1	1	07/31/2023 14:26	07/31/2023 14:26	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1990**	mg/L	10	1	07/28/2023 14:27	07/28/2023 14:27	RAA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

QC Results Summary — WO #: 22206

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	103.0		85	115		
LFB			100	89.2		85	115		
LFB			100	92.5		85	115		
LFB			100	92.9		85	115		
LFB			100	85.3		85	115		
LFB			100	94.9		85	115		
LFB			100	100.0		85	115		
LFB			100	102.0		85	115		
LFB			100	101.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	22177002		500	92.2	92.2	85	115	0.0	20
MS/MSD	22177013		1000	94.4	93.0	85	115	0.6	20
MS/MSD	22178004		500	95.6	95.8	85	115	0.1	20
MS/MSD	22203003		100	83.5	82.5	85	115	0.9	20
MS/MSD	22203012		100	69.4	68.9	85	115	0.0	20
MS/MSD	22327002		100	88.0	89.8	85	115	1.8	20
MS/MSD	22541001		100	82.0	83.6	85	115	1.6	20
MS/MSD	22541003		100	80.8	81.5	85	115	0.7	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	95.1		90	110		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.0		90	110		
LFB			30	97.4		90	110		
LFB			30	97.4		90	110		
LFB			30	90.4		90	110		
LFB			30	93.2		90	110		
LFB			30	94.0		90	110		
LFB			30	94.8		90	110		
LFB			30	95.1		90	110		
LFB			30	95.8		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	21916002		30	84.1	84.6	80	120	0.3	20
MS/MSD	22177006		30	88.1	87.8	80	120	0.3	20
MS/MSD	22202003		30	91.5	91.4	80	120	0.0	20
MS/MSD	22206003		30	81.7	83.6	80	120	0.9	20
MS/MSD	22208001		30	131.8	129.4	80	120	0.9	20

Boron Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-DE			0.4	97.0		85	115		
LFB-DE			0.4	98.1		85	115		
MB		<0.1							
MB		<0.1							

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22206001		0.4	90.0	89.5	70	130	0.4	20
MS/MSD	22208001		0.4	87.9	94.1	70	130	4.3	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	113.0		85	115		
LFB-MI			100	112.0		85	115		
MB		<1							
MB		<1							
DUP	22151001							3.8	20
DUP	22203010							4.3	20
DUP	22208001							2.3	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	107.0		85	115		
LFB-OE			0.4	104.0		85	115		
MB		<0.04							
MB		<0.04							
MS/MSD	22206001		0.4	99.0	98.6	70	130	3.3	20
MS/MSD	22208001		0.4	102.0	105.0	70	130	2.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	21916003		100	108.0	107.0	75	125	0.6	20
PDS/PDSD	22177002		100	106.0	106.0	75	125	0.4	20
PDS/PDSD	22177018		500	98.0	101.0	75	125	1.0	20
PDS/PDSD	22202007		100	111.0	110.0	75	125	1.0	20
PDS/PDSD	22203009		100	105.0	105.0	75	125	0.2	20
PDS/PDSD	22254001		100	108.0	108.0	75	125	0.2	20

Antimony — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	105.0	105.0	70	130	0.2	20

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	105.0	104.0	70	130	1.2	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	101.0	100.0	70	130	1.2	20

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	102.0	102.0	70	130	0.5	20

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	104.0	106.0	70	130	2.1	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	106.0	106.0	70	130	0.3	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	105.0	105.0	70	130	0.0	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	99.2	97.3	70	130	2.0	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	111.0	114.0	70	130	2.8	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	104.0	98.4	70	130	5.7	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22102001		0.4	92.4	91.4	70	130	1.1	20

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	112.0	111.0	75	125	1.2	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	115.0	114.0	75	125	0.6	20

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	104.0	104.0	75	125	0.2	20

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	102.0	105.0	75	125	3.0	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	101.0	97.1	75	125	3.9	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	111.0	109.0	75	125	1.6	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	110.0	109.0	75	125	0.7	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	89.4	89.0	75	125	0.4	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	121.0	119.0	75	125	2.3	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	104.0	99.6	75	125	4.7	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	22206001		0.1	85.6	85.2	75	125	0.5	20

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	99.5		80	120		
LFB-MS			0.1	103.0		80	120		
LFB-TC			0.1	90.1		80	120		
LFB-TC			0.1	102.0		80	120		
MB		<0.001							
MB		<0.001							
MS/MSD	22203009		0.4	106.0	102.0	75	125	4.1	20
MS/MSD	22208001		0.4	101.0	105.0	75	125	3.6	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
LFB-MS			0.1	107.0		80	120		
LFB-TC			0.1	100.0		80	120		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Arsenic — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-TC			0.1	101.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	22203009		0.4	106.0	103.0	75	125	2.3	20
MS/MSD	22208001		0.4	102.0	106.0	75	125	4.1	20

Barium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	101.0		80	120		
LFB-MS			0.1	96.9		80	120		
LFB-TC			0.1	99.9		80	120		
LFB-TC			0.1	88.3		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	22203009		0.4	104.0	99.6	75	125	5.0	20
MS/MSD	22208001		0.4	89.6	92.1	75	125	2.4	20

Beryllium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	96.8		80	120		
LFB-MS			0.1	104.0		80	120		
LFB-TC			0.1	98.0		80	120		
LFB-TC			0.1	115.0		80	120		
MB		<0.0005							
MB		<0.0005							
MS/MSD	22203009		0.4	109.0	105.0	75	125	4.0	20
MS/MSD	22208001		0.4	99.6	102.0	75	125	3.0	20

Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	107.0		80	120		
LFB-TC			0.1	103.0		80	120		
LFB-TC			0.1	103.0		80	120		

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Cadmium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MB		<0.0005							
MS/MSD	22203009		0.4	101.0	99.4	75	125	1.3	20
MS/MSD	22208001		0.4	99.5	101.0	75	125	1.5	20

Chromium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	109.0		80	120		
LFB-MS			0.1	107.0		80	120		
LFB-TC			0.1	108.0		80	120		
LFB-TC			0.1	119.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	22203009		0.4	108.0	104.0	75	125	3.8	20
MS/MSD	22208001		0.4	100.0	109.0	75	125	4.1	20

Cobalt — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	111.0		80	120		
LFB-MS			0.1	109.0		80	120		
LFB-TC			0.1	108.0		80	120		
LFB-TC			0.1	119.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	22203009		0.4	108.0	105.0	75	125	3.5	20
MS/MSD	22208001		0.4	102.0	105.0	75	125	2.7	20

Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	91.8		80	120		
LFB-MS			0.1	96.7		80	120		
LFB-TC			0.1	96.1		80	120		
LFB-TC			0.1	99.0		80	120		
MB		<0.0005							

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Lead — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<0.0005							
MS/MSD	22203009		0.4	104.0	101.0	75	125	2.9	20
MS/MSD	22208001		0.4	85.2	87.5	75	125	2.6	20

Molybdenum — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
LFB-MS			0.1	109.0		80	120		
LFB-TC			0.1	103.0		80	120		
LFB-TC			0.1	110.0		80	120		
MB		<0.002							
MB		<0.002							
MS/MSD	22203009		0.4	109.0	105.0	75	125	3.8	20
MS/MSD	22208001		0.4	102.0	104.0	75	125	2.1	20

Selenium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	100.0		80	120		
LFB-MS			0.1	98.7		80	120		
LFB-TC			0.1	107.0		80	120		
LFB-TC			0.1	97.3		80	120		
MB		<0.005							
MB		<0.005							
MS/MSD	22203009		0.4	107.0	105.0	75	125	1.1	20
MS/MSD	22208001		0.4	104.0	103.0	75	125	1.0	20

Thallium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	98.0		80	120		
LFB-MS			0.1	95.9		80	120		
LFB-TC			0.1	86.7		80	120		
LFB-TC			0.1	93.8		80	120		
MB		<0.0005							
MB		<0.0005							

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Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	22203009		0.4	97.9	94.2	75	125	3.6	20
MS/MSD	22208001		0.4	89.5	92.2	75	125	3.0	20

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	114.0		85	115		
LRB		<0.0002							
MS/MSD	22206003		0.002	111.0	112.0	70	130	0.0	20
MS/MSD	22208001		0.002	104.0	104.0	70	130	0.0	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.39	103.0		63.8	111		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	94.0		90	110		
LFB-F			0.5	96.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	22178002		0.5	112.0	116.0	80	120	4.2	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	95.0		90.35	110.33		
MB		<10							
DUP	20734011							3.0	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

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WO: 22206

Chain of Custody

Page _____ of _____

Work Order #
Lab Use Only

Company Name and Address Basin Electric Power Coop. Leland Olds Station 3901 Highway 200A Stanton, ND 58571	Account # 2040	Phone # 701-745-7238 701-557-5488
	Contact Mark Dihle	Emails mdihle@bepc.com aknutson@bepc.com
	Name of Sampler mls	jermey.hurshman@aecom.com jason.lach@aecom.com
Billing Address (indicate if different from above)	Quote Number	Date Submitted 7/27/2023
	Project Name/Number AVS CCR Wells	Purchase Order # 790708-01

Lab Use Only Lab	Sample ID	Sample Matrix GW - Groundwater	Date Sampled	Time Sampled	Bottles	Y/N	Analysis Required
001	MW 21S	GW	7/25/2023	1040	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
002	MW 22S	GW	7/26/2023	1045	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
003	MW 24S	GW	7/25/2023	1230	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
004	DUP	GW	7/25/2023	1230	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS

Comments:

Transferred by	Date	Time	Received by	Date	Time	Temp	ROI	Therm. #
MILLENNIUM EXPRESS			Brooke Rose	27JUL23	1509	5.3°C	Y / N	TM95
2.							Y / N	

Please submit the top copy with your samples. We will return the completed original with your results.

Form # 80-910005-1 See above for page number Effective Date: 26 Aug 2022

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS-SP-160-Landfill CCR Wells (29461) **PO:** 790708-01

Mark Dihle
Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Workorder Summary

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461001 **Date Collected:** 09/26/2023 08:40 **Matrix:** Groundwater
Sample ID: MW 15S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**400**	mg/L	25	5	10/04/2023 15:44	10/04/2023 15:44	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.12**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:50	MDE	
Calcium	**3.70**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:17	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**13.5**	mg/L	2.0	1	10/03/2023 09:44	10/03/2023 09:44	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.43**	mg/L	0.1	1	10/02/2023 18:08	10/02/2023 18:08	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1880**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461002 **Date Collected:** 09/26/2023 09:18 **Matrix:** Groundwater
Sample ID: MW 16S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**76.7**	mg/L	5	1	10/04/2023 15:34	10/04/2023 15:34	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.17**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:52	MDE	
Calcium	**2.02**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:19	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**24.3**	mg/L	2.0	1	10/03/2023 09:46	10/03/2023 09:46	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**2.06**	mg/L	0.1	1	10/02/2023 18:14	10/02/2023 18:14	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1120**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461003 **Date Collected:** 09/26/2023 09:50 **Matrix:** Groundwater
Sample ID: MW 17S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**212**	mg/L	5	1	10/04/2023 15:35	10/04/2023 15:35	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.13**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:53	MDE	
Calcium	**3.60**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:20	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**14.1**	mg/L	2.0	1	10/03/2023 09:47	10/03/2023 09:47	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.52**	mg/L	0.1	1	10/02/2023 18:20	10/02/2023 18:20	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1330**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461004 **Date Collected:** 09/26/2023 13:10 **Matrix:** Groundwater
Sample ID: MW 18S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**448**	mg/L	25	5	10/04/2023 15:45	10/04/2023 15:45	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.10**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:54	MDE	
Calcium	**4.32**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:21	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**9.1**	mg/L	2.0	1	10/03/2023 09:48	10/03/2023 09:48	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.26**	mg/L	0.1	1	10/02/2023 18:26	10/02/2023 18:26	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1780**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461005 **Date Collected:** 09/26/2023 11:48 **Matrix:** Groundwater
Sample ID: MW 19S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**756**	mg/L	50	10	10/04/2023 15:46	10/04/2023 15:46	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.13**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:54	MDE	
Calcium	**3.94**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:23	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**18.3**	mg/L	2.0	1	10/03/2023 09:56	10/03/2023 09:56	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**0.69**	mg/L	0.1	1	10/02/2023 18:32	10/02/2023 18:32	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**2160**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461006 **Date Collected:** 09/26/2023 10:20 **Matrix:** Groundwater
Sample ID: MW 20S **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**63.1**	mg/L	5	1	10/04/2023 15:39	10/04/2023 15:39	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.13**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:55	MDE	
Calcium	**4.44**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:26	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**25.1**	mg/L	2.0	1	10/03/2023 09:57	10/03/2023 09:57	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**1.25**	mg/L	0.1	1	10/02/2023 18:38	10/02/2023 18:38	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**1860**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 29461007 **Date Collected:** 09/26/2023 11:48 **Matrix:** Groundwater
Sample ID: DUP **Date Received:** 09/27/2023 16:12 **Collector:** Client

Temp @ Receipt (C): 4.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	**710**	mg/L	50	10	10/04/2023 15:47	10/04/2023 15:47	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	**0.13**	mg/L	0.1	1	09/28/2023 16:05	10/09/2023 14:55	MDE	
Calcium	**3.97**	mg/L	1	1	09/28/2023 16:05	10/02/2023 14:30	MDE	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	**18.3**	mg/L	2.0	1	10/03/2023 09:59	10/03/2023 09:59	EJV	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	**0.72**	mg/L	0.1	1	10/02/2023 18:44	10/02/2023 18:44	CC	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	**2180**	mg/L	10	1	10/04/2023 07:20	10/04/2023 07:20	CC	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

QC Results Summary — WO #: 29461

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	98.9		85	115		
LFB			100	107.0		85	115		
LFB			100	96.0		85	115		
LFB			100	95.1		85	115		
LFB			100	95.9		85	115		
LFB			100	95.1		85	115		
LFB			100	96.0		85	115		
LFB			100	93.9		85	115		
LFB			100	93.7		85	115		
LFB			100	95.1		85	115		
LFB			100	97.0		85	115		
LFB			100	96.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	29018001		500	89.3	90.1	85	115	0.9	20
MS/MSD	29288002		100	87.0	87.0	85	115	0.0	20
MS/MSD	29296008		100	70.1	70.6	85	115	1.0	20
MS/MSD	29352003		1000	94.6	95.7	85	115	0.7	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Sulfate Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	29461007		1000	87.4	90.5	85	115	1.9	20
MS/MSD	29474002		2000	96.0	95.4	85	115	0.4	20
MS/MSD	29493001		1000	86.9	86.1	85	115	0.0	20
MS/MSD	29611006		500	64.6	63.2	85	115	1.0	20
MS/MSD	29613002		1000	85.1	85.0	85	115	0.0	20
MS/MSD	29614005		500	88.7	94.5	85	115	5.4	20
MS/MSD	29712001		100	91.5	90.2	85	115	0.9	20

Chloride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	93.8		90	110		
LFB			30	93.0		90	110		
LFB			30	92.8		90	110		
LFB			30	93.8		90	110		
LFB			30	93.8		90	110		
LFB			30	93.2		90	110		
LFB			30	93.4		90	110		
LFB			30	93.3		90	110		
LFB			30	93.4		90	110		
LFB			30	91.6		90	110		
LFB			30	93.5		90	110		
LFB			30	93.4		90	110		
LFB			30	91.7		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							

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Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	29298003		30	107.8	107.3	80	120	0.4	20
MS/MSD	29461004		30	90.1	91.5	80	120	1.1	20
MS/MSD	29488003		30	108.8	107.7	80	120	0.5	20
MS/MSD	29611008		30	95.7	94.0	80	120	1.2	20
MS/MSD	29614007		30	90.8	91.1	80	120	0.3	20
MS/MSD	29763001		3000	130.4	130.5	80	120	0.1	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	102.0		85	115		
MB		<1							
DUP	29456003							1.2	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	30198005		0.4	92.6	95.2	75	125	0.6	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	29458001		500	102.0	101.0	75	125	0.6	20
PDS/PDSD	29463007		100	102.0	103.0	75	125	0.1	20
PDS/PDSD	29483002		100	96.4	97.6	75	125	1.2	20
PDS/PDSD	29483003		100	99.1	100.0	75	125	0.9	20
PDS/PDSD	29604001		500	103.0	101.0	75	125	1.4	20
PDS/PDSD	29612005		100	91.2	94.1	75	125	1.5	20
PDS/PDSD	29614003		100	84.3	86.0	75	125	0.8	20
PDS/PDSD	29633002		100	76.7	70.0	75	125	1.7	20
PDS/PDSD	29633006		500	93.4	94.3	75	125	0.5	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Boron Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OF			0.4	100.0		85	115		
MB		<0.1							
MS/MSD	29461001		0.4	87.6	87.4	75	125	0.1	20

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	101.0		85	115		
MB		<1							
DUP	29461006							3.7	20
DUP	29463010							0.0	20
DUP	29483004							1.0	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			17	97.3		83.8	111		
LFB-F			0.5	108.0		90	110		
LFB-F			0.5	110.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	29461002		0.5	92.0	94.0	80	120	0.4	20

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	100.0		90.35	110.33		
CRM			736	101.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	29480001							0.0	20
DUP	29461007							0.0	20
DUP	29474002							0.5	20
DUP	29474004							0.0	20

Report Date: Friday, October 27, 2023 1:33:08 PM

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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories, Inc.
2616 East Broadway Avenue
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Phone: (701) 258-9720
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Basin Electric Power Coop
WO: 29461

Chain of Custody

Page _____ of _____

Work Order #
Lab Use Only

Company Name and Address Basin Electric Power Coop. Leland Olds Station 3901 Highway 200A Stanton, ND 58571	Account # 2040	Phone # 701-745-7238 701-557-5488
	Contact Mark Dihle	Emails mdihle@bepc.com aknutson@bepc.com
	Name of Sampler mls	jermey.hurshman@aecom.com jason.lach@aecom.com
Billing Address (indicate if different from above)	Quote Number	Date Submitted 9/27/2023
	Project Name/Number AVS-SP-160-Landfill CCR Wells	Purchase Order # 790708-01

Lab Use Only Lab	Sample ID	Sample Matrix GW - Groundwater	Date Sampled	Time Sampled	Bottles	Y/N	Analysis Required
001	MW 15S	GW	9/26/2023	840	2	N	B, Ca, Cl, F, SO_4, TDS
002	MW 16S	GW	9/26/2023	918	2	N	B, Ca, Cl, F, SO_4, TDS
003	MW 17S	GW	9/26/2023	950	2	N	B, Ca, Cl, F, SO_4, TDS
004	MW 18S	GW	9/26/2023	1310	2	N	B, Ca, Cl, F, SO_4, TDS
005	MW 19S	GW	9/26/2023	1148	2	N	B, Ca, Cl, F, SO_4, TDS
006	MW 20S	GW	9/26/2023	1020	2	N	B, Ca, Cl, F, SO_4, TDS
007	DUP	GW	9/26/2023	1148	2	N	B, Ca, Cl, F, SO_4, TDS

Comments:

Transferred by	Date	Time	Received by	Date	Time	Temp	ROI	Therm. #
MILLENNIUM EXPRESS	9/27/2023		Heather Horst	9/27/23	1612	4.7	(Y) N	TM 90
2.							Y / N	

Please submit the top copy with your samples. We will return the completed original with your results.

Form # 80-910005-1 See above for page number Effective Date: 26 Aug 2022

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS CCR SP 160/ LOS CCR SP 143 (30881) **PO:** 790708-01 /790708-04

Mark Dihle
Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 30881001 **Date Collected:** 10/11/2023 12:00 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 10/11/2023 15:55 **Collector:** Client

Temp @ Receipt (C): 2.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**536**	mg/L	25	5	10/18/2023 16:30	10/18/2023 16:30	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	10/12/2023 10:55	10/12/2023 12:31	
Method: EPA 6010D							
Boron	**0.13**	mg/L	0.1	1	10/11/2023 17:00	10/12/2023 09:46	
Calcium	**4.77**	mg/L	1	1	10/11/2023 17:00	10/13/2023 11:37	
Lithium	**0.0407**	mg/L	0.02	1	10/11/2023 17:00	10/16/2023 15:59	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	10/11/2023 17:00	10/26/2023 16:34	
Arsenic	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:34	
Barium	**0.0415**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:34	
Beryllium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/27/2023 09:43	
Cadmium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:34	
Chromium	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:34	
Cobalt	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:34	
Lead	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:34	
Molybdenum	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:34	
Selenium	<0.005	mg/L	0.005	5	10/11/2023 17:00	10/26/2023 16:34	
Thallium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:34	
Method: SM4500-Cl-E 2011							
Chloride	**18.1**	mg/L	2.0	1	10/17/2023 12:14	10/17/2023 12:14	
Method: SM4500-F-C-2011							
Fluoride	**1.35**	mg/L	0.1	1	10/12/2023 14:24	10/12/2023 14:24	
Method: USGS I-1750-85							
Total Dissolved Solids	**2140**	mg/L	10	1	10/13/2023 14:09	10/13/2023 14:09	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 30881002 **Date Collected:** 10/11/2023 09:10 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 10/11/2023 15:55 **Collector:** Client

Temp @ Receipt (C): 2.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**191**	mg/L	5	1	10/18/2023 16:21	10/18/2023 16:21	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	10/12/2023 10:55	10/12/2023 12:31	
Method: EPA 6010D							
Boron	**0.14**	mg/L	0.1	1	10/11/2023 17:00	10/12/2023 09:47	
Calcium	**2.75**	mg/L	1	1	10/11/2023 17:00	10/13/2023 11:38	
Lithium	**0.0438**	mg/L	0.02	1	10/11/2023 17:00	10/16/2023 16:00	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	10/11/2023 17:00	10/26/2023 16:38	
Arsenic	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:38	
Barium	**0.0562**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:38	
Beryllium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/27/2023 09:33	
Cadmium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:38	
Chromium	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:38	
Cobalt	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:38	
Lead	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:38	
Molybdenum	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:38	
Selenium	<0.005	mg/L	0.005	5	10/11/2023 17:00	10/26/2023 16:38	
Thallium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:38	
Method: SM4500-Cl-E 2011							
Chloride	**12.2**	mg/L	2.0	1	10/17/2023 12:22	10/17/2023 12:22	
Method: SM4500-F-C-2011							
Fluoride	**1.62**	mg/L	0.1	1	10/12/2023 14:30	10/12/2023 14:30	
Method: USGS I-1750-85							
Total Dissolved Solids	**1640**	mg/L	10	1	10/13/2023 14:09	10/13/2023 14:09	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 30881003 **Date Collected:** 10/11/2023 10:17 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 10/11/2023 15:55 **Collector:** Client

Temp @ Receipt (C): 2.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**56.1**	mg/L	5	1	10/18/2023 16:31	10/18/2023 16:31	
Method: EPA 245.1							
Mercury	**0.0002**	mg/L	0.0002	1	10/12/2023 10:55	10/12/2023 12:31	
Method: EPA 6010D							
Boron	**0.11**	mg/L	0.1	1	10/11/2023 17:00	10/12/2023 09:47	
Calcium	**4.34**	mg/L	1	1	10/11/2023 17:00	10/13/2023 11:39	
Lithium	**0.0461**	mg/L	0.02	1	10/11/2023 17:00	10/16/2023 16:00	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	10/11/2023 17:00	10/26/2023 16:43	
Arsenic	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:43	
Barium	**0.0873**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:43	
Beryllium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/27/2023 09:35	
Cadmium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:43	
Chromium	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:43	
Cobalt	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:43	
Lead	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:43	
Molybdenum	**0.0068**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:43	
Selenium	<0.005	mg/L	0.005	5	10/11/2023 17:00	10/26/2023 16:43	
Thallium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:43	
Method: SM4500-Cl-E 2011							
Chloride	**51.9**	mg/L	2.0	1	10/17/2023 12:23	10/17/2023 12:23	
Method: SM4500-F-C-2011							
Fluoride	**1.44**	mg/L	0.1	1	10/12/2023 14:36	10/12/2023 14:36	
Method: USGS I-1750-85							
Total Dissolved Solids	**1960**	mg/L	10	1	10/13/2023 14:09	10/13/2023 14:09	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 30881004 **Date Collected:** 10/11/2023 10:17 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 10/11/2023 15:55 **Collector:** Client

Temp @ Receipt (C): 2.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**55.1**	mg/L	5	1	10/18/2023 16:32	10/18/2023 16:32	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	10/12/2023 10:55	10/12/2023 12:31	
Method: EPA 6010D							
Boron	**0.11**	mg/L	0.1	1	10/11/2023 17:00	10/12/2023 09:48	
Calcium	**4.42**	mg/L	1	1	10/11/2023 17:00	10/13/2023 11:40	
Lithium	**0.0471**	mg/L	0.02	1	10/11/2023 17:00	10/16/2023 16:01	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	10/11/2023 17:00	10/26/2023 16:47	
Arsenic	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:47	
Barium	**0.0882**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:47	
Beryllium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/27/2023 09:38	
Cadmium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:47	
Chromium	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:47	
Cobalt	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:47	
Lead	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:47	
Molybdenum	**0.0074**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:47	
Selenium	<0.005	mg/L	0.005	5	10/11/2023 17:00	10/26/2023 16:47	
Thallium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:47	
Method: SM4500-Cl-E 2011							
Chloride	**50.8**	mg/L	2.0	1	10/17/2023 12:24	10/17/2023 12:24	
Method: SM4500-F-C-2011							
Fluoride	**1.31**	mg/L	0.1	1	10/12/2023 14:42	10/12/2023 14:42	
Method: USGS I-1750-85							
Total Dissolved Solids	**2010**	mg/L	10	1	10/13/2023 14:09	10/13/2023 14:09	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 30881005 **Date Collected:** 10/11/2023 14:10 **Matrix:** Groundwater
Sample ID: MW-2016-12 **Date Received:** 10/11/2023 15:55 **Collector:** Client

Temp @ Receipt (C): 2.9 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	**20.4**	mg/L	5	1	10/18/2023 16:33	10/18/2023 16:33	
Method: EPA 245.1							
Mercury	<0.0002	mg/L	0.0002	1	10/12/2023 10:55	10/12/2023 12:31	
Method: EPA 6010D							
Boron	**0.25**	mg/L	0.1	1	10/11/2023 17:00	10/12/2023 09:49	
Calcium	**12.9**	mg/L	1	1	10/11/2023 17:00	10/13/2023 11:41	
Lithium	**0.0221**	mg/L	0.02	1	10/11/2023 17:00	10/16/2023 16:02	
Method: EPA 6020B							
Antimony	<0.001	mg/L	0.001	5	10/11/2023 17:00	10/26/2023 16:52	
Arsenic	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:52	
Barium	**0.0484**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:52	
Beryllium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/27/2023 09:40	
Cadmium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:52	
Chromium	**0.0020**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:52	
Cobalt	<0.002	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:52	
Lead	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:52	
Molybdenum	**0.0093**	mg/L	0.002	5	10/11/2023 17:00	10/26/2023 16:52	
Selenium	<0.005	mg/L	0.005	5	10/11/2023 17:00	10/26/2023 16:52	
Thallium	<0.0005	mg/L	0.0005	5	10/11/2023 17:00	10/26/2023 16:52	
Method: SM4500-Cl-E 2011							
Chloride	**42.2**	mg/L	2.0	1	10/17/2023 12:25	10/17/2023 12:25	
Method: SM4500-F-C-2011							
Fluoride	**0.68**	mg/L	0.1	1	10/12/2023 14:48	10/12/2023 14:48	
Method: USGS I-1750-85							
Total Dissolved Solids	**1560**	mg/L	10	1	10/13/2023 14:09	10/13/2023 14:09	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

QC Results Summary — WO #: 30881

Sulfate — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	101.0		85	115		
LFB			100	100.0		85	115		
LFB			100	100.0		85	115		
LFB			100	103.0		85	115		
LFB			100	103.0		85	115		
LFB			100	103.0		85	115		
LFB			100	104.0		85	115		
LFB			100	98.8		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	30202007		2000	85.4	85.5	85	115	0.0	20
MS/MSD	30251008		1000	97.5	97.0	85	115	0.0	20
MS/MSD	30389007		500	89.4	89.9	85	115	0.9	20
MS/MSD	30388017		500	79.7	77.6	85	115	1.8	20
MS/MSD	30715001		500	79.6	80.3	85	115	0.6	20
MS/MSD	30774001		1000	74.9	73.4	85	115	0.5	20
MS/MSD	30900002		1000	89.4	89.8	85	115	0.6	20

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	101.0		90	110		
LFB			30	100.0		90	110		
LFB			30	101.0		90	110		
LFB			30	91.0		90	110		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Chloride — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	101.0		90	110		
LFB			30	99.9		90	110		
LFB			30	98.3		90	110		
LFB			30	96.9		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	30718001		30	90.1	89.6	90	120	0.6	20
MS/MSD	30777001		30	116.8	119.2	80	120	1.0	20
MS/MSD	30900007		30	85.8	83.2	90	120	2.8	20
MS/MSD	31043007		30	100.0	96.2	90	120	2.2	20

Boron — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	30881005		0.4	86.5	86.7	75	125	0.2	20

Calcium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	30380017		500	106.0	105.0	75	125	0.8	20
PDS/PDSD	30583004		500	88.7	90.5	75	125	0.9	20
PDS/PDSD	30718003		500	98.8	97.0	75	125	0.7	20
PDS/PDSD	30734001		500	90.6	90.1	75	125	0.1	20
PDS/PDSD	30881005		100	103.0	102.0	75	125	0.5	20
PDS/PDSD	30899001		500	109.0	108.0	75	125	0.5	20

Lithium — Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	30881004		0.4	83.3	82.1	75	125	0.3	20

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	121.0	101.0	75	125	0.2	20

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	101.0	102.0	75	125	0.9	20

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	70.8	69.7	75	125	1.0	20

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	96.7	98.4	75	125	1.7	20

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	92.2	89.5	75	125	3.0	20

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	97.8	99.1	75	125	1.3	20

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	96.7	97.2	75	125	0.5	20

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	92.8	93.5	75	125	0.8	20

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	103.0	104.0	75	125	1.9	20

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	96.3	98.6	75	125	2.4	20

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
SPK/SPKD	30881001		0.1	92.0	91.4	75	125	0.7	20

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MT			100	109.0		85	115		
LFB-MT			100	111.0		85	115		
MB									

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Calcium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB		<1							
DUP	30715004							0.3	20
DUP	30718005							2.5	20
DUP	30774003							3.5	20
DUP	30828001							0.0	20

Lithium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-DE			0.4	100.0		85	115		
MB		<0.04							

Antimony Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	108.0		80	120		
MB		<0.001							

Arsenic Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	104.0		80	120		
MB		<0.002							

Barium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	102.0		80	120		
MB		<0.002							

Beryllium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.0005							

Cadmium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.0005							

Chromium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	115.0		80	120		
MB		<0.002							

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Cobalt Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	113.0		80	120		
MB		<0.002							

Lead Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	105.0		80	120		
MB		<0.0005							

Molybdenum Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	107.0		80	120		
MB		<0.001							

Selenium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.005							

Thallium Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MS			0.1	106.0		80	120		
MB		<0.0005							

Mercury Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			0.002	104.0		85	115		
LRB		<0.0002							
MS/MSD	30881003		0.002	97.4	96.0	70	130	1.7	20
MS/MSD	30881005		0.002	105.0	102.0	70	130	3.0	20

Fluoride Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			1.7	87.0		83.8	111		
LFB-F			0.5	92.0		90	110		
LFB-F			0.5	92.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	30881005		0.5	96.0	88.0	80	120	8.0	10

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Total Dissolved Solids Units: mg/L

QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	100.0		90.35	110.33		
MB		<10							
[illegible]	30881001							[illegible]	[illegible]

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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories, Inc.
2616 East Broadway Avenue
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Basin Electric Power Coope
WO: 30881

Chain of Custody

Page 1 of 2

Work Order # (Lab Use Only)

Company Name and Address: Basin Electric Power Coop., Leland Olds Station, 3901 Highway 200A, Stanton, ND 58571	Account # 2040
Billing Address (indicate if different from above)	Phone # 701-745-7238 701-557-5488
	Contact: Mark Dihle
	Emails: mdihle@bepc.com aknutson@bepc.com
	Name of Sampler: mls
	jermey.hurshman@aecom.com jason.lach@aecom.com
	Quote Number
	Date Submitted: 10/11/2023
	Project Name/Number: AVS CCR Wells SP 160
	Purchase Order #: 790708-01

Lab Use Only Lab	Sample ID	Sample Matrix (GW - Groundwater)	Date Sampled	Time Sampled	Bottles	Y/N	Analysis Required
001	MW 21S	GW	10/11/2023	1200	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
002	MW 22S	GW	10/11/2023	910	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
003	MW 24S	GW	10/11/2023	1017	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS
004	DUP	GW	10/11/2023	1017	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS

Comments:

Transferred by	Date	Time	Received by	Date	Time	Temp	ROI	Therm. #
MILLENNIUM EXPRESS			Michelle Rose	10/11/23	1555	2.9C	(Y) N	TM92
2.							Y / N	

Please submit the top copy with your samples. We will return the completed original with your results.

Form # 80-910005-1 See above for page number Effective Date: 26 Aug 2022

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories, Inc.
2616 East Broadway Avenue
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Lab Use Only

Chain of Custody

Page 2 of 2

Work Order # (Lab Use Only)

Company Name and Address: Basin Electric Power Coop. Leland Olds Station 3901 Highway 200A Stanton, ND 58571	Account #: 2040	Phone #: 701-745-7238 701-557-5488
	Contact: Mark Dihle	Emails: mdihle@bepc.com aknutson@bepc.com
Billing Address (indicate if different from above)	Name of Sampler: mls	jermey.hurshman@aecom.com jason.lach@aecom.com
	Quote Number	Date Submitted: 10/11/2023
	Project Name/Number: LOS CCR Wells SP 143	Purchase Order #: 790708-04

Lab Use Only Lab	Sample ID	Sample Matrix GW - Groundwater	Date Sampled	Time Sampled	Bottles	Y/N	Analysis Required
005	MW - 2016 - 12	GW	10/11/2023	1410	3	N	B, Ca, Cl, F, SO_4, Sb, As, Ba, Be, Cd, Cr, Co,Pb, Li, Hg, Mo, Se, Tl, Ra226, Ra228, TDS

Comments:

Transferred by	Date	Time	Received by	Date	Time	Temp	ROI	Therm. #
MILLENNIUM EXPRESS			[signature]	11/11/23	1555	2.9C	Y/N	TM920
2.							Y / N	

Please submit the top copy with your samples. We will return the completed original with your results.

Form # 80-910005-1 See above for page number Effective Date: 26 Aug 2022

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS (2952) **PO:** 790708-01

Kevin Solie
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBu	GEL Laboratories	2040, Charleston. SC 29407	843-556-8171	CERT

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2952001 **Date Collected:** 08/24/2022 10:25 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		
Radium 228	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		

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www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2952002 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		
Radium 228	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2952003 **Date Collected:** 08/24/2022 12:55 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		
Radium 228	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2952004 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		
Radium 228	See Attached			1	10/03/2022 12:36	10/03/2022 12:36	SUBu		

GEL Laboratories LLC
a member of The GEL Group INC

gel.com

September 30, 2022

Claudette Carroll

2616 E Broadway Ave
Bismarck, North Dakota 58501

Re: Routine Analysis - Radiochemistry
Work Order: 592043
SDG: 2952

Dear Claudette Carroll:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 06, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jessica Ward for
Delaney Stone
Project Manager

Purchase Order: BL6587
Enclosures

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Table of Contents

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Case Narrative

Receipt Narrative
for
Minnesota Valley Testing Laboratories, Inc.
SDG: 2952
Work Order: 592043

September 30, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on September 06, 2022 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
592043001	MW 24S
592043002	MW 22S
592043003	MW 21S
592043004	DUP

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Jessica Ward for
Delaney Stone
Project Manager

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Chain of Custody and Supporting Documentation

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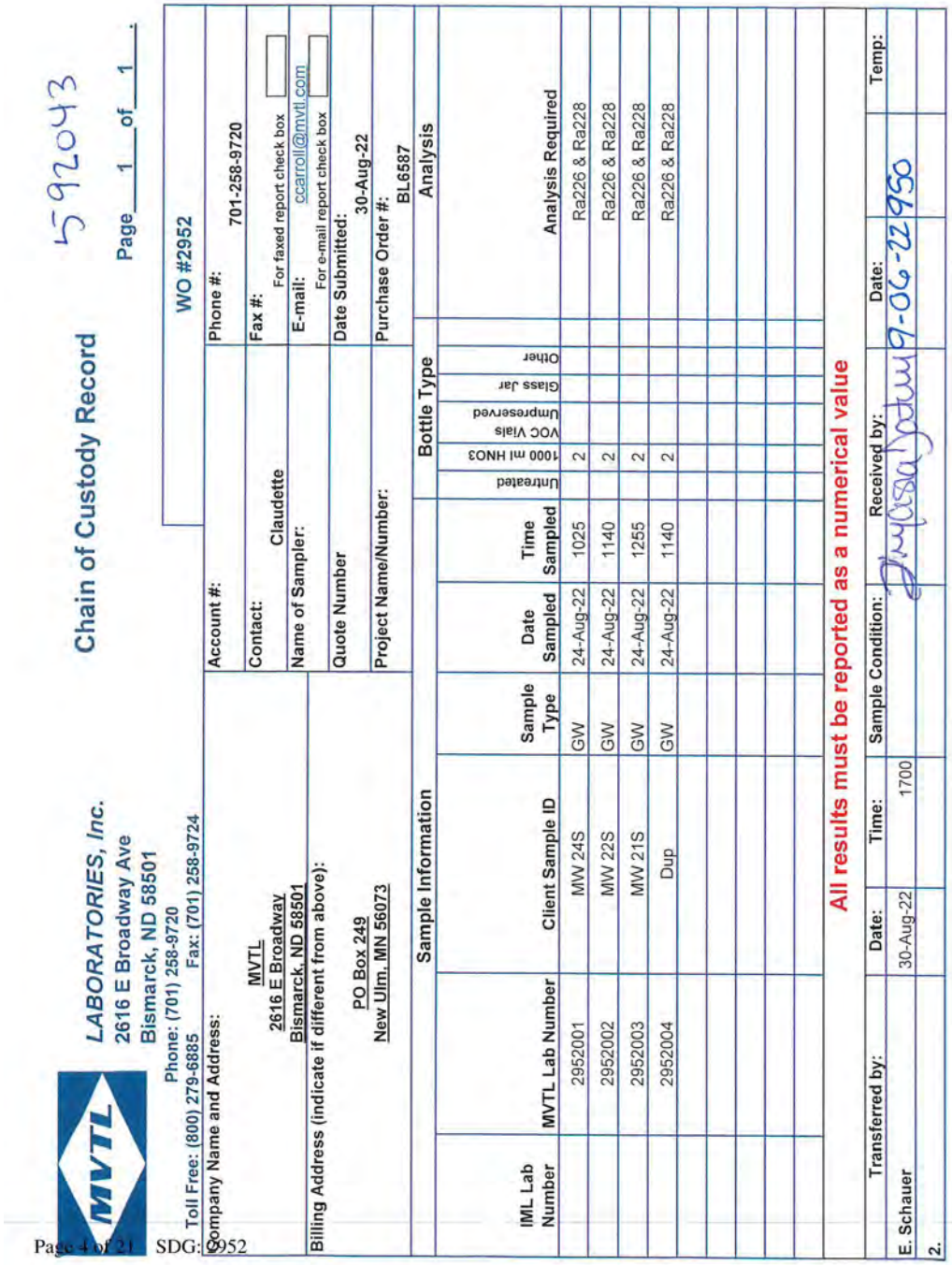
Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative



Chain of Custody Record

592043

Page 1 of 1

LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720 Fax: (701) 258-9724
Toll Free: (800) 279-6885

WO #2952

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501

Account #:
Contact: Claudette
Name of Sampler:
Phone #: 701-258-9720
Fax #: For faxed report check box
E-mail: ccarroll@mvtl.com For e-mail report check box
Date Submitted: 30-Aug-22
Purchase Order #: BL6587

Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073

Quote Number
Project Name/Number:

IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Unpreserved	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	2952001	MW 24S	GW	24-Aug-22	1025		2				Ra226 & Ra228
	2952002	MW 22S	GW	24-Aug-22	1140		2				Ra226 & Ra228
	2952003	MW 21S	GW	24-Aug-22	1255		2				Ra226 & Ra228
	2952004	Dup	GW	24-Aug-22	1140		2				Ra226 & Ra228

Sample Information

All results must be reported as a numerical value

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
E. Schauer	30-Aug-22	1700			9-06-22	950
2.						

Page 4 of 21 SDG: 2952

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www.MVTL.com

Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: MVTL	**SDG/AR/COC/Work Order:** 592043 DS
Received By: Thyasia Tatum	**Date Received:** 9/6/22
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground (UPS) Field Services Courier Other 1Z555901 0360 9047 7714

Suspected Hazard Information	Yes	No	
		✓	If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr **Classified as: Rad 1 Rad 2 Rad 3**
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

Sample Receipt Criteria		Yes	NA	No	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			✓	Preservation Method: Wet Ice Ice Packs Dry Ice (None) Other: *all temperatures are recorded in Celsius TEMP: 26°C
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR2-20 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials SJ Date 9/7/22 Page 1 of 1

GL-CHL-SR-001 Rev 7

Page 5 of 21 SDG: 2952

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Laboratory Certifications

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Account #: 2040 **Client:** Basin Electric Power Cooperative

List of current GEL Certifications as of 30 September 2022

State	Certification
Alabama	42200
Alaska	17–018
Alaska Drinking Water	SC00012
Arkansas	88–0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH–0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330–15–00283, P330–15–00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C–SC–01
Kansas NELAP	E–10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M–SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE–OS–26–13
Nevada	SC000122023–3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R–158
Oklahoma	2022–137
Pennsylvania NELAP	68–00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235–22–20
Utah NELAP	SC000122021–36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Radiological Analysis

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Case Narrative

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Radiochemistry
Technical Case Narrative
Minnesota Valley Testing Laboratories, Inc.
SDG #: 2952
Work Order #: 592043

Product: **Radium-226+Radium-228 Calculation**
Analytical Method: Calculation
Analytical Procedure: GL-RAD-D-003 REV# 45
Analytical Batch: 2313813

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
592043001	MW 24S
592043002	MW 22S
592043003	MW 21S
592043004	DUP

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2313814

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
592043001	MW 24S
592043002	MW 22S
592043003	MW 21S
592043004	DUP
1205185676	Method Blank (MB)
1205185677	592165001(NonSDG) Sample Duplicate (DUP)
1205185678	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

RDL Met
The following RDL was met with rounding.

Sample	Analyte	Value
1205185676 (MB)	Radium-228	Result 0.23 < MDA 1.04 > RDL 1 pCi/L

Technical Information

Recounts
Sample 1205185677 (Non SDG 592165001DUP) was re-eluted and recounted to verify sample result. The recount is reported.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2313807

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
592043001	MW 24S
592043002	MW 22S
592043003	MW 21S
592043004	DUP
1205185662	Method Blank (MB)
1205185663	592165001(NonSDG) Sample Duplicate (DUP)
1205185664	592165001(NonSDG) Matrix Spike (MS)
1205185665	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1205185664 (Non SDG 592165001MS), aliquot was reduced to conserve sample volume.

Certification Statement

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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Account #: 2040 **Client:** Basin Electric Power Cooperative

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MVTL001 Minnesota Valley Testing Laboratories, Inc.

Client SDG: 2952 GEL Work Order: 592043

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:  **Name:** Kate Gellatly

Date: 03 OCT 2022 **Title:** Analyst I

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Sample Data Summary

Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 3, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 24S	Project:	MVTL00121
Sample ID:	592043001	Client ID:	MVTL001
Matrix:	Water		
Collect Date:	24-AUG-22 10:25		
Receive Date:	06-SEP-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.85	+/-1.22	1.88	3.00	pCi/L			JE1	09/16/22	1321	2313814	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.28	+/-1.29			pCi/L		1	TON1	09/30/22	1536	2313813	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.43	+/-0.426	0.292	1.00	pCi/L			LXP1	09/19/22	0757	2313807	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 15 of 21 SDG: 2952

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Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: October 3, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 22S	Project:	MVTL00121
Sample ID:	592043002	Client ID:	MVTL001
Matrix:	Water		
Collect Date:	24-AUG-22 11:40		
Receive Date:	06-SEP-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.123	+/-0.987	1.92	3.00	pCi/L			JE1	09/16/22	1321	2313814	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.61	+/-1.13			pCi/L		1	TON1	09/30/22	1536	2313813	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.61	+/-0.542	0.514	1.00	pCi/L			LXP1	09/19/22	0833	2313807	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			78.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 16 of 21 SDG: 2952

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Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 3, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 21S	Project:	MVTL00121
Sample ID:	592043003	Client ID:	MVTL001
Matrix:	Water		
Collect Date:	24-AUG-22 12:55		
Receive Date:	06-SEP-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	-0.231	+/-0.876	1.71	3.00	pCi/L			JE1	09/16/22	1321	2313814	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.198	+/-0.904			pCi/L		1	TON1	09/30/22	1536	2313813	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.198	+/-0.224	0.365	1.00	pCi/L			LXP1	09/19/22	0833	2313807	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			90.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 17 of 21 SDG: 2952

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Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: October 3, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	DUP	Project:	MVTL00121
Sample ID:	592043004	Client ID:	MVTL001
Matrix:	Water		
Collect Date:	24-AUG-22 11:40		
Receive Date:	06-SEP-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	1.47	+/-1.12	1.77	3.00	pCi/L			JE1	09/16/22	1321	2313814	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.93	+/-1.16			pCi/L		1	TON1	09/30/22	1536	2313813	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.460	+/-0.281	0.293	1.00	pCi/L			LXP1	09/19/22	0833	2313807	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			87.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 18 of 21 SDG: 2952

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Quality Control Summary

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Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: October 3, 2022

2616 E Broadway Ave
Bismarck, North Dakota
Contact: Claudette Carroll

Workorder: 592043

Parmname		NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch 2313814											
QC1205185677 592165001 DUP											
Radium-228			1.90		1.31	pCi/L	36.6		(0% - 100%)	JE1	09/19/22 11:58
		Uncertainty	+/-0.698		+/-0.637						
QC1205185678 LCS											
Radium-228		44.4			42.8	pCi/L		96.4	(75%-125%)		09/16/22 13:21
		Uncertainty			+/-3.60						
QC1205185676 MB											
Radium-228				U	0.230	pCi/L					09/16/22 13:21
		Uncertainty			+/-0.598						
Rad Ra-226											
Batch 2313807											
QC1205185663 592165001 DUP											
Radium-226			0.976		1.59	pCi/L	48.1		(0% - 100%)	LXP1	09/19/22 09:06
		Uncertainty	+/-0.379		+/-0.545						
QC1205185665 LCS											
Radium-226		26.6			22.8	pCi/L		85.9	(75%-125%)		09/19/22 09:06
		Uncertainty			+/-1.69						
QC1205185662 MB											
Radium-226				U	0.0704	pCi/L					09/19/22 09:06
		Uncertainty			+/-0.218						
QC1205185664 592165001 MS											
Radium-226		133	0.976		109	pCi/L		81.4	(75%-125%)		09/19/22 09:06
		Uncertainty	+/-0.379		+/-8.38						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 592043

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where the duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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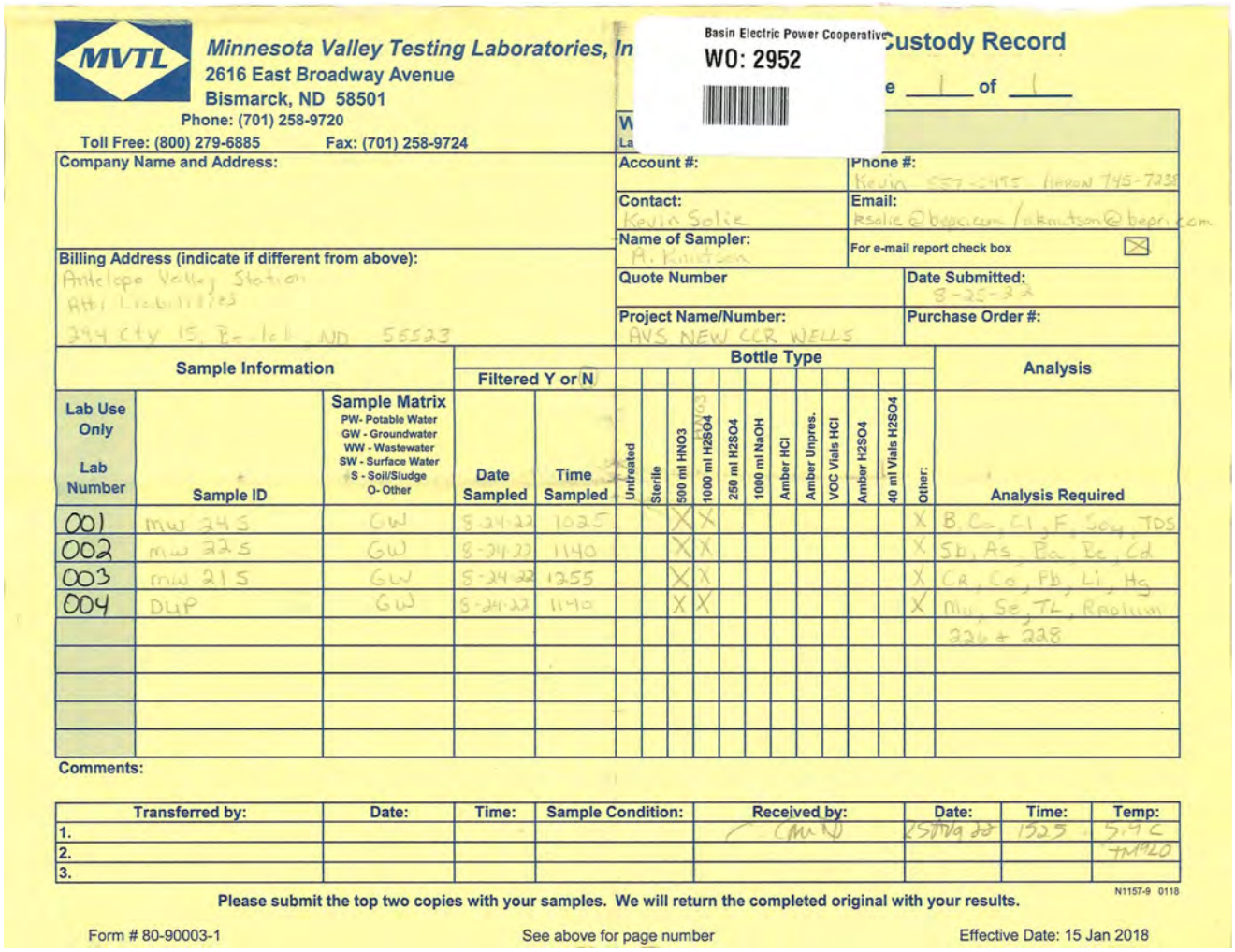
Account #: 2040 **Client:** Basin Electric Power Cooperative



Minnesota Valley Testing Laboratories, In
2616 East Broadway Avenue
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Basin Electric Power Cooperative
WO: 2952

Custody Record
Page 1 of 1

Company Name and Address:

Billing Address (indicate if different from above):
Antelope Valley Station
Attn: Liabilities
3914 City 15 Beulah ND 58523

Account #:
Phone #: Kevin 557-2455 Heron 745-7238
Contact: Kevin Solie
Email: Rsolie@bepc.com / akmattson@bepc.com
Name of Sampler: A. Knutson
For e-mail report check box
Quote Number
Date Submitted: 8-25-22
Project Name/Number: AVS NEW CCR WELLS
Purchase Order #:

Sample Information			Filtered Y or N		Bottle Type											Analysis
Lab Use Only Lab Number	Sample ID	Sample Matrix PW- Potable Water GW - Groundwater WW - Wastewater SW - Surface Water S - Soil/Sludge O- Other	Date Sampled	Time Sampled	Untreated	Sterile	500 ml HNO3	1000 ml H2SO4	250 ml H2SO4	1000 ml NaOH	Amber HCl	Amber Unpres.	VOC Vials HCl	Amber H2SO4	40 ml Vials H2SO4	Other:	Analysis Required
001	MW 345	GW	8-24-22	1025			X	X								X	B, Ca, Cl, F, SO4, TDS
002	MW 325	GW	8-24-22	1140			X	X								X	Sb, As, Ba, Be, Cd
003	MW 215	GW	8-24-22	1255			X	X								X	Cr, Co, Pb, Li, Hg
004	DUP	GW	8-24-22	1140			X	X								X	Mo, Se, TL, Radium 226 + 228

Comments:

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.				CMN	8/25/22	1525	5.4 C
2.							TM 20
3.							

N1157-9 0118

Please submit the top two copies with your samples. We will return the completed original with your results.

Form # 80-90003-1 See above for page number Effective Date: 15 Jan 2018

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS 160 (3570) **PO:** 790708-01

Kevin Solie
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016 SD SDWA

Subcontracted Analyses

Analyzed By	Company	Address	Phone	Certification
SUBu	GEL Laboratories	2040, Charleston. SC 29407	843-556-8171	CERT

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Sample Comments

3570004 (Dup) - Sample

Time sampled was not supplied by the client.

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3570001 **Date Collected:** 09/28/2022 09:20 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		
Radium 228	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3570002 **Date Collected:** 09/28/2022 10:45 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		
Radium 228	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		

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www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3570003 **Date Collected:** 09/28/2022 12:15 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		
Radium 228	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		

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www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3570004 **Date Collected:** 09/28/2022 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Contract Lab

Method: Contracted Result

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Radium 226	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		
Radium 228	See Attached			1	11/07/2022 14:50	11/07/2022 14:50	SUBu		

Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL Laboratories LLC
a member of The GEL Group INC

gel.com

November 01, 2022

Claudette Carroll

2616 E Broadway Ave
Bismarck, North Dakota 58501

Re: Routine Analysis - Radiochemistry
Work Order: 596375
SDG: 3570

Dear Claudette Carroll:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 10, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Delaney Stone

Delaney Stone
Project Manager

Purchase Order: BL6604
Enclosures

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Account #: 2040 **Client:** Basin Electric Power Cooperative

Table of Contents

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Case Narrative

Receipt Narrative
for
Minnesota Valley Testing Laboratories, Inc.
SDG: 3570
Work Order: 596375

November 01, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 10, 2022 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
596375001	MW 22S
596375002	MW 24S
596375003	MW 21S
596375004	Dup

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Delaney Stone
Project Manager

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
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Account #: 2040 **Client:** Basin Electric Power Cooperative

Chain of Custody and Supporting Documentation

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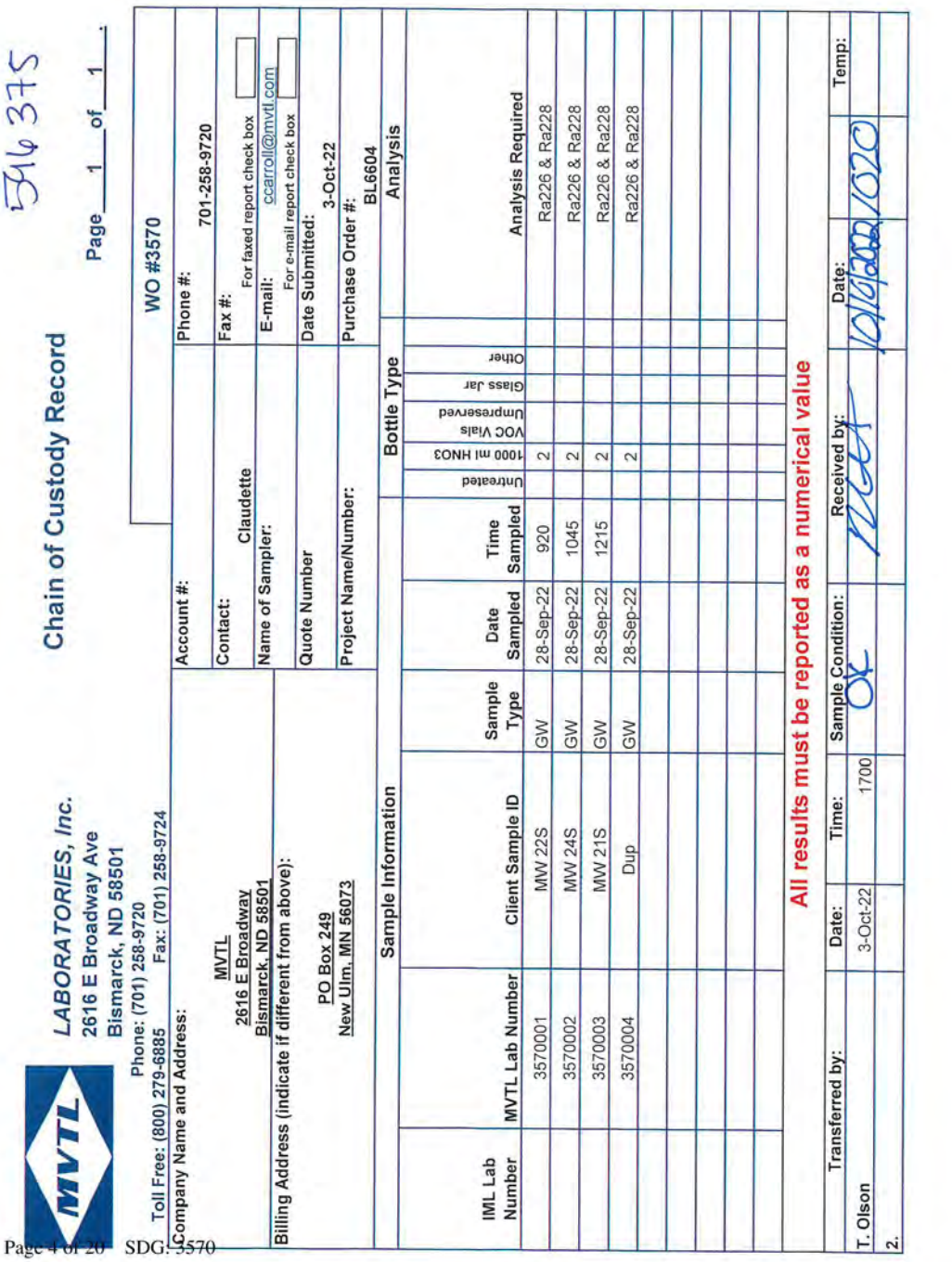
Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative



LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

Page 1 of 1

WO #3570

Company Name and Address: MVTL, 2616 E Broadway, Bismarck, ND 58501
Account #:
Phone #: 701-258-9720
Contact: Claudette
Fax #: For faxed report check box
Name of Sampler:
E-mail: ccarroll@mvtl.com For e-mail report check box
Quote Number
Date Submitted: 3-Oct-22
Billing Address (indicate if different from above): PO Box 249, New Ulm, MN 56073
Project Name/Number:
Purchase Order #: BL6604

IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Bottle Type: Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other	Analysis Required
	3570001	MW 22S	GW	28-Sep-22	920		2				Ra226 & Ra228
	3570002	MW 24S	GW	28-Sep-22	1045		2				Ra226 & Ra228
	3570003	MW 21S	GW	28-Sep-22	1215		2				Ra226 & Ra228
	3570004	Dup	GW	28-Sep-22			2				Ra226 & Ra228

Sample Information / Bottle Type / Analysis

All results must be reported as a numerical value

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Temp:
T. Olson	3-Oct-22	1700	OK		10/6/2022	
2.						

Page 4 of 20 SDG: 3570

Account #: 2040 **Client:** Basin Electric Power Cooperative

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM DS

Client: MVTL	SDG/AR/COC/Work Order: 596375
Received By: MVH	Date Received: 10/10/2022
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground (UPS) Field Services Courier Other 1Z555901036887175G

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		X	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		X	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		X	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	X			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		X		Preservation Method: Wet Ice Ice Packs Dry ice (None) Other: *all temperatures are recorded in Celsius TEMP: 23
4	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: IR2-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			X	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			ID's and containers affected:
10	Date & time on COC match date & time on bottles?			X	Circle Applicable: No dates on containers No (times on containers) COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	X			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			X	
13	COC form is properly signed in relinquished/received sections?	X			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials [signature] Date 10/12/22 Page 1 of 1

GL-CHL-SR-001 Rev 7

Page 5 of 20 SDG: 3570

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Laboratory Certifications

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Account #: 2040 **Client:** Basin Electric Power Cooperative

List of current GEL Certifications as of 01 November 2022

State	Certification
Alabama	42200
Alaska	17–018
Alaska Drinking Water	SC00012
Arkansas	88–0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH–0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330–15–00283, P330–15–00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C–SC–01
Kansas NELAP	E–10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M–SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE–OS–26–13
Nevada	SC000122023–3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R–158
Oklahoma	2022–160
Pennsylvania NELAP	68–00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235–22–20
Utah NELAP	SC000122021–36
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Radiological Analysis

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Case Narrative

Radiochemistry
Technical Case Narrative
Minnesota Valley Testing Laboratories, Inc.
SDG #: 3570
Work Order #: 596375

Product: **GFPC Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2331093

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
596375001	MW 22S
596375002	MW 24S
596375003	MW 21S
596375004	Dup
1205221400	Method Blank (MB)
1205221401	596340001(NonSDG) Sample Duplicate (DUP)
1205221402	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples 596375001 (MW 22S), 596375002 (MW 24S), 596375003 (MW 21S) and 596375004 (Dup) were non-homogenous matrix. Samples 596375001 (MW 22S), 596375002 (MW 24S), 596375003 (MW 21S) and 596375004 (Dup) were murky.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2331060

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
596375001	MW 22S
596375002	MW 24S
596375003	MW 21S
596375004	Dup

1205221306	Method Blank (MB)
1205221307	596340001(NonSDG) Sample Duplicate (DUP)
1205221308	596340001(NonSDG) Matrix Spike (MS)
1205221309	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples 596375001 (MW 22S), 596375002 (MW 24S), 596375003 (MW 21S) and 596375004 (Dup) were non-homogenous matrix.

Miscellaneous Information

Additional Comments
The matrix spike, 1205221308 (Non SDG 596340001MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

MVTL001 Minnesota Valley Testing Laboratories, Inc.

Client SDG: 3570 GEL Work Order: 596375

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kenshalla Oston **Name:** Kenshalla Oston

Date: 07 NOV 2022 **Title:** Analyst I

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 7, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 22S	Project:	MVTL00121
Sample ID:	596375001	Client ID:	MVTL001
Matrix:	Ground Water		
Collect Date:	28-SEP-22 09:20		
Receive Date:	10-OCT-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.400	+/-1.10	1.96	3.00	pCi/L			JE1	10/31/22	0924	2331093	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.778	+/-1.13			pCi/L			NXL1	11/03/22	0735	2331091	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.378	+/-0.262	0.348	1.00	pCi/L			LXP1	10/31/22	0901	2331060	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Account #: 2040 **Client:** Basin Electric Power Cooperative

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Certificate of Analysis

Report Date: November 7, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 24S	Project:	MVTL00121
Sample ID:	596375002	Client ID:	MVTL001
Matrix:	Ground Water		
Collect Date:	28-SEP-22 10:45		
Receive Date:	10-OCT-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.532	+/-1.26	2.22	3.00	pCi/L			JE1	10/31/22	0924	2331093	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.569	+/-1.29			pCi/L			NXL1	11/03/22	0735	2331091	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.0371	+/-0.262	0.535	1.00	pCi/L			LXP1	10/31/22	0932	2331060	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			86.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 15 of 20 SDG: 3570

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Certificate of Analysis

Report Date: November 7, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	MW 21S	Project:	MVTL00121
Sample ID:	596375003	Client ID:	MVTL001
Matrix:	Ground Water		
Collect Date:	28-SEP-22 12:15		
Receive Date:	10-OCT-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.0919	+/-1.05	1.94	3.00	pCi/L			JE1	10/31/22	0924	2331093	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.504	+/-1.09			pCi/L			NXL1	11/03/22	0735	2331091	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.412	+/-0.271	0.350	1.00	pCi/L			LXP1	10/31/22	0932	2331060	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			89.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 16 of 20 SDG: 3570

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 7, 2022

Company :
Address : 2616 E Broadway Ave

Bismarck, North Dakota 58501
Contact: Claudette Carroll
Project: Routine Analysis - Radiochemistry

Client Sample ID:	Dup	Project:	MVTL00121
Sample ID:	596375004	Client ID:	MVTL001
Matrix:	Ground Water		
Collect Date:	28-SEP-22 12:00		
Receive Date:	10-OCT-22		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC Ra228, Liquid "As Received"													
Radium-228	U	0.252	+/-1.12	2.03	3.00	pCi/L			JE1	10/31/22	0925	2331093	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.653	+/-1.16			pCi/L			NXL1	11/03/22	0735	2331091	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.402	+/-0.293	0.412	1.00	pCi/L			LXP1	10/31/22	0932	2331060	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"			84.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Page 17 of 20 SDG: 3570

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 7, 2022

2616 E Broadway Ave
Bismarck, North Dakota
Contact: **Claudette Carroll**

Workorder: **596375**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2331093										
QC1205221401 596340001 DUP										
Radium-228	U	0.103	U	1.16	pCi/L	N/A		N/A	JE1	10/31/22 09:24
	Uncertainty	+/-1.31		+/-1.23						
QC1205221402 LCS										
Radium-228	65.8			66.4	pCi/L		101	(75%-125%)		10/31/22 09:24
	Uncertainty			+/-4.45						
QC1205221400 MB										
Radium-228			U	0.712	pCi/L					10/31/22 09:23
	Uncertainty			+/-1.55						
Rad Ra-226										
Batch 2331060										
QC1205221307 596340001 DUP										
Radium-226		0.988		0.642	pCi/L	42.4		(0% - 100%)	LXP1	10/31/22 10:06
	Uncertainty	+/-0.459		+/-0.369						
QC1205221309 LCS										
Radium-226	26.5			32.1	pCi/L		121	(75%-125%)		10/31/22 10:07
	Uncertainty			+/-2.26						
QC1205221306 MB										
Radium-226			U	0.157	pCi/L					10/31/22 10:06
	Uncertainty			+/-0.345						
QC1205221308 596340001 MS										
Radium-226	127	0.988		115	pCi/L		90.1	(75%-125%)		10/31/22 10:07
	Uncertainty	+/-0.459		+/-8.59						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 596375

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where the duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.MVTL.com

Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories,
2616 East Broadway Avenue
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Basin Electric Power Cooperative
WO: 3570

Custody Record

Page 1 of

3570

Company Name and Address:	Account #:
Billing Address (indicate if different from above): Antelope Valley Station Att: Lisa Wilkes 3994 City 15, Beulah ND 58523-9475	Phone #: Kevin 202-5096 / Adam 745-7235
	Contact: Kevin Solic
	Email: RSolic@bepc.com / abmitsen@bepc.com
	Name of Sampler: A. Knutson
	For e-mail report check box ☒
	Quote Number
	Date Submitted: 9-29-22
	Project Name/Number: AVS 160
	Purchase Order #: 7707708-01

Sample Information					Filtered Y or N		Bottle Type											Analysis
Lab Use Only Lab Number	Sample ID	Sample Matrix PW- Potable Water GW - Groundwater WW - Wastewater SW - Surface Water S - Soil/Sludge O- Other	Date Sampled	Time Sampled			Untreated	Sterile	500 ml HNO3	1000 ml H2SO4	250 ml H2SO4	1000 ml NaOH	Amber HCl	Amber Unpres.	VOC Vials HCl	Amber H2SO4	40 ml Vials H2SO4	Other:	Analysis Required
001	mw 22S	GW	9-28-22	0930			X		X									X	B, Ca, Cl, F, SO4, TDS
002	mw 24S	GW	9-28-22	1045			X		X									X	Sb, As, Ba, Be, Cd, Cr
003	mw 21S	GW	9-28-22	1215			X		X									X	Co, Pb, Li, Hg, Mo
																			Se, Tl
004	Dup																		Radium 226 + 228

Comments:

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.					29 Sept 22	1551	2.2°C
2.							TM920
3.							

N1157-9 0118

Please submit the top two copies with your samples. We will return the completed original with your results.

Form # 80-90003-1 See above for page number Effective Date: 15 Jan 2018

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-149165-1
Laboratory Sample Delivery Group: BEPC AVS LANDFILL
Client Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
6/30/2021 9:42:18 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Qualifiers

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
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: 280-149165-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - BEPC AVS LANDFILL

Report Number: 280-149165-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

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.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 5/28/2021 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.5º C and 2.3º C.

Receipt Exceptions

Samples MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9) are reported separately under this SDG (280-149165-1) per reporting format requirements for radiochemistry analyses. The rest of the samples listed on the COC are reported under SDG 280-149165-2.

The Chain-of-Custody (COC) was incomplete as received. There was no collection time/date documented on the COC and no specific analyses were designated for the following sample: DUP (280-149165-10). The sample was logged per the containers received.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-17s (280-149165-1). The container label lists collection time "10:45", while the COC lists "10:35". The sample was logged per the collection time listed on the COC.

RADIUM-226 (GFPC)

Samples MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 06/04/2021 and analyzed on 06/29/2021.

During the in-growth process, the following samples needed to be filtered due to sediment present in the samples: MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9). This is an indicator of matrix interference.

The following samples were prepared at a reduced aliquot due to matrix: MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9).

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

Job ID: 280-149165-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-228

Samples MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 06/04/2021 and analyzed on 06/25/2021.

During the in-growth process, the following samples needed to be filtered due to sediment present in the samples: MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9). This is an indicator of matrix interference.

The following samples were prepared at a reduced aliquot due to matrix: MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9).

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-22s (280-149165-4), MW-24s (280-149165-6) and MW-21s (280-149165-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/29/2021.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-22s — Lab Sample ID: 280-149165-4

No Detections.

Client Sample ID: MW-24s — Lab Sample ID: 280-149165-6

No Detections.

Client Sample ID: MW-21s — Lab Sample ID: 280-149165-9

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-149165-4	MW-22s	Water	05/24/21 14:30	05/28/21 09:45	
280-149165-6	MW-24s	Water	05/25/21 12:00	05/28/21 09:45	
280-149165-9	MW-21s	Water	05/26/21 12:30	05/28/21 09:45	

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.139	U	0.161	0.161	1.00	0.262	pCi/L	06/04/21 16:30	06/29/21 07:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.1*		*40 - 110*	*06/04/21 16:30*	*06/29/21 07:09*	*1*

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.176	U	0.165	0.166	1.00	0.257	pCi/L	06/04/21 16:30	06/29/21 07:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.8*		*40 - 110*	*06/04/21 16:30*	*06/29/21 07:11*	*1*

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.365**		0.179	0.182	1.00	0.224	pCi/L	06/04/21 16:30	06/29/21 07:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.8*		*40 - 110*	*06/04/21 16:30*	*06/29/21 07:11*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.250	U	0.442	0.443	1.00	0.748	pCi/L	06/04/21 16:58	06/25/21 10:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.1*		*40 - 110*	*06/04/21 16:58*	*06/25/21 10:34*	*1*
Y Carrier	*90.5*		*40 - 110*	*06/04/21 16:58*	*06/25/21 10:34*	*1*

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.594	U	0.399	0.402	1.00	0.611	pCi/L	06/04/21 16:58	06/25/21 10:34	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	69.8		40 - 110	06/04/21 16:58	06/25/21 10:34	1
Y Carrier	90.8		40 - 110	06/04/21 16:58	06/25/21 10:34	1

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.572	U	0.394	0.398	1.00	0.611	pCi/L	06/04/21 16:58	06/25/21 10:34	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.8		40 - 110	06/04/21 16:58	06/25/21 10:34	1
Y Carrier	89.0		40 - 110	06/04/21 16:58	06/25/21 10:34	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.388	U	0.470	0.471	5.00	0.748	pCi/L		06/29/21 21:08	1

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.770**		0.432	0.435	5.00	0.611	pCi/L		06/29/21 21:08	1

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.937**		0.433	0.438	5.00	0.611	pCi/L		06/29/21 21:08	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-512827/19-A
Matrix: Water
Analysis Batch: 516499

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 512827

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1052	U	0.131	0.131	1.00	0.216	pCi/L	06/04/21 16:30	06/29/21 15:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*06/04/21 16:30*	*06/29/21 15:37*	*1*

Lab Sample ID: LCS 160-512827/1-A
Matrix: Water
Analysis Batch: 516499

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 512827

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	13.55		1.51	1.00	0.234	pCi/L	90	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.1*		*40 - 110*

Lab Sample ID: LCSD 160-512827/2-A
Matrix: Water
Analysis Batch: 516499

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 512827

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			15.1	13.50		1.49	1.00	0.210	pCi/L	89	75 - 125	0.02	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*84.4*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-512828/19-A
Matrix: Water
Analysis Batch: 516165

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 512828

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1416	U	0.303	0.303	1.00	0.520	pCi/L	06/04/21 16:58	06/25/21 10:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*06/04/21 16:58*	*06/25/21 10:36*	*1*
Y Carrier	*92.0*		*40 - 110*	*06/04/21 16:58*	*06/25/21 10:36*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-512828/1-A
Matrix: Water
Analysis Batch: 516165

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 512828

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.8	14.18		1.65	1.00	0.504	pCi/L	111	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.1*		*40 - 110*
Y Carrier	*89.0*		*40 - 110*

Lab Sample ID: LCSD 160-512828/2-A
Matrix: Water
Analysis Batch: 516165

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 512828

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			12.8	13.69		1.60	1.00	0.528	pCi/L	107	75 - 125	0.15	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*84.4*		*40 - 110*
Y Carrier	*89.0*		*40 - 110*

QC Association Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Rad

Prep Batch: 512827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	PrecSep-21	
280-149165-6	MW-24s	Total/NA	Water	PrecSep-21	
280-149165-9	MW-21s	Total/NA	Water	PrecSep-21	
MB 160-512827/19-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-512827/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-512827/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 512828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	PrecSep_0	
280-149165-6	MW-24s	Total/NA	Water	PrecSep_0	
280-149165-9	MW-21s	Total/NA	Water	PrecSep_0	
MB 160-512828/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-512828/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-512828/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.13 mL	1.0 g	512827	06/04/21 16:30	MJ	TAL SL
Total/NA	Analysis	9315		1			516499	06/29/21 07:09	ANW	TAL SL
Total/NA	Prep	PrecSep_0			750.13 mL	1.0 g	512828	06/04/21 16:58	MJ	TAL SL
Total/NA	Analysis	9320		1			516165	06/25/21 10:34	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			516646	06/29/21 21:08	GRW	TAL SL

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.70 mL	1.0 g	512827	06/04/21 16:30	MJ	TAL SL
Total/NA	Analysis	9315		1			516593	06/29/21 07:11	ANW	TAL SL
Total/NA	Prep	PrecSep_0			750.70 mL	1.0 g	512828	06/04/21 16:58	MJ	TAL SL
Total/NA	Analysis	9320		1			516165	06/25/21 10:34	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			516646	06/29/21 21:08	GRW	TAL SL

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.87 mL	1.0 g	512827	06/04/21 16:30	MJ	TAL SL
Total/NA	Analysis	9315		1			516593	06/29/21 07:11	ANW	TAL SL
Total/NA	Prep	PrecSep_0			751.87 mL	1.0 g	512828	06/04/21 16:58	MJ	TAL SL
Total/NA	Analysis	9320		1			516165	06/25/21 10:34	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			516646	06/29/21 21:08	GRW	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

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	03-31-23
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	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-21
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	04-01-22
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	03-01-22
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193	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	06-14-22
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

280-149165 Chain of Custody

Eurofins | Environment Testing America

Client Information	Sampler: AARON Knutson	Lab PM: Turner, Shelby R	
Client Contact: Mr. Kevin Solie	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com	
Company: Basin Electric Power Cooperative			
Address: 1717 East Interstate Avenue	Due Date Requested:		
City: Bismarck	TAT Requested (days): STANDARD		
State, Zip: ND, 58503			
Phone: 701-202-5096(Tel)	PO #: Purchase Order Requested		
Email: ksolie@bepc.com	WO #:		
Project Name: CCR Groundwater - North Dakota Site	Project #: 28021258		
Site: BEPC AVS LANDFILL	SSOW#:		

Analysis Requested

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)	6010C - Total B, Ca, Li (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (APP III + IV)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9315_Ra226, 9320_Ra226, Combined Radium-226 and Radium-228	6010C - Total Calcium and Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N			D		
MW-17S	5-25-21	1035	G	Water	N			X	X		X		pH - 7.87
MW-16S	5-25-21	1015	G	Water	N			X	X		X		pH - 8.72
MW-15S	5-25-21	0900	G	Water	N			X	X		X		pH - 7.77
MW-22S	5-24-21	1430	G	Water	N		X	X	X	X	X		pH - 7.99
MW-20S	5-25-21	0930	G	Water	N			X	X		X		pH - 7.84
MW-24S	5-25-21	1200	G	Water	N		X	X	X	X	X		pH - 7.80
MW-19S	5-26-21	0925	G	Water	N			X	X		X		pH - 7.87
MW-18S	5-26-21	1105	G	Water	N			X	X		X		pH - 9.09
MW-21S	5-26-21	1230	G	Water	N		X	X	X	X	X		pH - 7.83
DUP			G	Water	N								
				Water									

Preservation Codes:

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

Other:

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:	Date/Time: 5-27-21	Company: BEPC	Received by: JOE
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Received by: JOE	Date/Time: 05/28/2021 0945	Company: ETADEN	
Received by:	Date/Time:	Company:	
Received by:	Date/Time:	Company:	

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

Cooler Temperature(s) °C and Other Remarks: 1.9, 0.1 IR11 +0.4

Ver: 01/16/2019

0.1

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY21
ACTWGT: 53.00 LB
CAD: 251286197/INET43

BILL SENDER

Cust
DATE
SIGNATURE
erica, L

eurofins

1553032

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV
PO
REF CCR GROUNDWATER - ND SITE
DEPT

280-149165 Waybill

FedEx Ship Manager - Print Your Label(s)

FRI - 28 MAY
PRIORITY OVER

1 of 2
TRK# 0201 7738 4062 5640
MASTER

XH LAAA

CO-US

5/27/2021

650 4 10:30 E

Received 0/20 10:30
0/20 10:30
Asset ID

Job ID: 280-144231-1

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY21
ACTWGT: 54.00 LB
CAD: 251286197/INET4340

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV
PO
REF: CCR GROUNDWATER - ND SITE
DEPT

FedEx Express

E

2 of 2
MPS# 0263 7738 4062 5559
Mstr# 7738 4062 5640
0201

FRI - 28 MAY 10:30A
PRIORITY OVERNIGHT

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80002
CO-US DEN

FedEx Ship Manager - Print Your Label(s)

5/27/2021

eurofins | Environment Testing TestAmerica
1553033

F 10:30 4 650

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-570788.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@Eurofinset.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-149165-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/28/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR Groundwater - ND Sites- BEPC AVS LANDFILL	Project #: 28021258			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - 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)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-22s (280-149165-4)	5/24/21	14:30 Central		Water			X	X	X	2	
MW-24s (280-149165-6)	5/25/21	12:00 Central		Water			X	X	X	2	
MW-21s (280-149165-9)	5/26/21	12:30 Central		Water			X	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
	6/1/21 13K		PE		
Relinquished by: PE	Date/Time:	Company	Received by:	Date/Time: 6/2/21 0925	Company ETAST
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: 11/01/2020

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-149165-1
SDG Number: BEPC AVS LANDFILL

Login Number: 149165
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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 containers received and the COC.	False	Refer to Job Narrative for details.
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.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-149165-1
SDG Number: BEPC AVS LANDFILL

Login Number: 149165
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins TestAmerica, St. Louis
List Creation: 06/03/21 07:47 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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-1
SDG: BEPC AVS LANDFILL

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-149165-4	MW-22s	74.1
280-149165-6	MW-24s	69.8
280-149165-9	MW-21s	78.8
LCS 160-512827/1-A	Lab Control Sample	84.1
LCSD 160-512827/2-A	Lab Control Sample Dup	84.4
MB 160-512827/19-A	Method Blank	87.5

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-149165-4	MW-22s	74.1	90.5
280-149165-6	MW-24s	69.8	90.8
280-149165-9	MW-21s	78.8	89.0
LCS 160-512828/1-A	Lab Control Sample	84.1	89.0
LCSD 160-512828/2-A	Lab Control Sample Dup	84.4	89.0
MB 160-512828/19-A	Method Blank	87.5	92.0

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-149165-2
Laboratory Sample Delivery Group: BEPC AVS LANDFILL
Client Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
6/29/2021 10:08:30 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

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

Job ID: 280-149165-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Report Number: 280-149165-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 5/28/2021 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.5º C and 2.3º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. There was no collection time/date documented on the COC and no specific analyses were designated for the following sample: DUP (280-149165-10). The sample was logged per the information documented on the containers received.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-17s (280-149165-1). The container labels list collection time "10:45", while the COC lists "10:35". The sample was logged per the collection time listed on the COC.

TOTAL RECOVERABLE METALS

Samples MW-17s (280-149165-1), MW-16s (280-149165-2), MW-15s (280-149165-3), MW-22s (280-149165-4), MW-20s (280-149165-5), MW-24s (280-149165-6), MW-19s (280-149165-7), MW-18s (280-149165-8), MW-21s (280-149165-9) and DUP (280-149165-10) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/10/2021 and 06/24/2021 and analyzed on 06/10/2021 and 06/25/2021.

Boron and Calcium failed the recovery criteria low for the MS of sample MW-17s (280-149165-1) in batch 280-539494. Boron and Calcium exceeded the RPD limit for the MSD. The associated LCS is within control limits for these analytes; therefore, qualified data has been reported. Refer to the QC report for details.

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

TOTAL METALS (ICPMS)

Samples MW-22s (280-149165-4), MW-24s (280-149165-6), MW-21s (280-149165-9) and DUP (280-149165-10) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared on 06/04/2021 and analyzed on 06/06/2021.

The low level continuing calibration verification (CCVL) associated with batch 280-538827 recovered above the upper control limit (130%) for Beryllium (180%). The samples associated with this CCVL were <RL (1ppb) for the affected analytes; therefore, the data has been reported.

Job ID: 280-149165-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

TOTAL MERCURY

Samples MW-22s (280-149165-4), MW-24s (280-149165-6), MW-21s (280-149165-9) and DUP (280-149165-10) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/11/2021.

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

TOTAL DISSOLVED SOLIDS

Samples MW-17s (280-149165-1), MW-16s (280-149165-2), MW-15s (280-149165-3), MW-22s (280-149165-4), MW-20s (280-149165-5), MW-24s (280-149165-6), MW-19s (280-149165-7), MW-18s (280-149165-8), MW-21s (280-149165-9) and DUP (280-149165-10) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/01/2021.

The following sample was prepared outside of the preparation holding time due to holiday weekend: MW-22s (280-149165-4). The sample is the only sample collected on 5/24 so the holding time expired on 5/31 when the lab was closed for Memorial Day. The client was notified on 6/8/21 and instructed the lab to proceed with reporting.

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

ANIONS (28 DAYS)

Samples MW-17s (280-149165-1), MW-16s (280-149165-2), MW-15s (280-149165-3), MW-22s (280-149165-4), MW-20s (280-149165-5), MW-24s (280-149165-6), MW-19s (280-149165-7), MW-18s (280-149165-8), MW-21s (280-149165-9) and DUP (280-149165-10) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 06/14/2021 and 06/15/2021.

Samples MW-17s (280-149165-1)[5X], MW-15s (280-149165-3)[5X], MW-22s (280-149165-4)[5X], MW-19s (280-149165-7)[5X], MW-18s (280-149165-8)[5X], MW-21s (280-149165-9)[5X] and DUP (280-149165-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-17s — Lab Sample ID: 280-149165-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	156	F2 F1	100		ug/L	1		6010C	Total Recoverable
Calcium	4740	F2 F1	200		ug/L	1		6010C	Total Recoverable
Chloride	9.51		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.49		0.500		mg/L	1		9056A	Total/NA
Sulfate	226		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1740		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16s — Lab Sample ID: 280-149165-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	172		100		ug/L	1		6010C	Total Recoverable
Calcium	3960		200		ug/L	1		6010C	Total Recoverable
Chloride	15.9		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.84		0.500		mg/L	1		9056A	Total/NA
Sulfate	79.3		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1120		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-15s — Lab Sample ID: 280-149165-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	155		100		ug/L	1		6010C	Total Recoverable
Calcium	5320		200		ug/L	1		6010C	Total Recoverable
Chloride	8.93		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.47		0.500		mg/L	1		9056A	Total/NA
Sulfate	380		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1860		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-22s — Lab Sample ID: 280-149165-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	147		100		ug/L	1		6010C	Total Recoverable
Calcium	2900		200		ug/L	1		6010C	Total Recoverable
Lithium	46.1		20.0		ug/L	1		6010C	Total Recoverable
Barium	53.3		1.00		ug/L	1		6020A	Total/NA
Chloride	7.84		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.69		0.500		mg/L	1		9056A	Total/NA
Sulfate	228		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1640	H	20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-20s — Lab Sample ID: 280-149165-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	151		100		ug/L	1		6010C	Total Recoverable
Calcium	6730		200		ug/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-20s (Continued) — Lab Sample ID: 280-149165-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19.8		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.31		0.500		mg/L	1		9056A	Total/NA
Sulfate	71.7		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1840		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-24s — Lab Sample ID: 280-149165-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	129		100		ug/L	1		6010C	Total Recoverable
Calcium	6080		200		ug/L	1		6010C	Total Recoverable
Lithium	77.9		20.0		ug/L	1		6010C	Total Recoverable
Barium	60.4		1.00		ug/L	1		6020A	Total/NA
Cobalt	1.28		1.00		ug/L	1		6020A	Total/NA
Molybdenum	13.8		2.00		ug/L	1		6020A	Total/NA
Chloride	42.9		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.59		0.500		mg/L	1		9056A	Total/NA
Sulfate	35.2		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	2040		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-19s — Lab Sample ID: 280-149165-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	166		100		ug/L	1		6010C	Total Recoverable
Calcium	4430		200		ug/L	1		6010C	Total Recoverable
Chloride	12.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.909		0.500		mg/L	1		9056A	Total/NA
Sulfate	707		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2120		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-18s — Lab Sample ID: 280-149165-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	121		100		ug/L	1		6010C	Total Recoverable
Calcium	4360		200		ug/L	1		6010C	Total Recoverable
Chloride	4.78		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.35		0.500		mg/L	1		9056A	Total/NA
Sulfate	395		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1670		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21s — Lab Sample ID: 280-149165-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	155		100		ug/L	1		6010C	Total Recoverable
Calcium	8620		200		ug/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-21s (Continued) — Lab Sample ID: 280-149165-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	32.7		20.0		ug/L	1		6010C	Total Recoverable
Barium	53.5		1.00		ug/L	1		6020A	Total/NA
Cobalt	1.02		1.00		ug/L	1		6020A	Total/NA
Molybdenum	8.70		2.00		ug/L	1		6020A	Total/NA
Chloride	13.7		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.54		0.500		mg/L	1		9056A	Total/NA
Sulfate	617		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2240		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-149165-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	164		100		ug/L	1		6010C	Total Recoverable
Calcium	4390		200		ug/L	1		6010C	Total Recoverable
Lithium	48.1		20.0		ug/L	1		6010C	Total Recoverable
Arsenic	0.504	J	5.00	0.330	ug/L	1		6020A	Total/NA
Barium	46.0		1.00	0.290	ug/L	1		6020A	Total/NA
Cobalt	0.225	J	1.00	0.0923	ug/L	1		6020A	Total/NA
Molybdenum	3.15	B	2.00	0.140	ug/L	1		6020A	Total/NA
Chloride	12.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.903		0.500		mg/L	1		9056A	Total/NA
Sulfate	766		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2110		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-149165-1	MW-17s	Water	05/25/21 10:35	05/28/21 09:45	
280-149165-2	MW-16s	Water	05/25/21 10:15	05/28/21 09:45	
280-149165-3	MW-15s	Water	05/25/21 09:00	05/28/21 09:45	
280-149165-4	MW-22s	Water	05/24/21 14:30	05/28/21 09:45	
280-149165-5	MW-20s	Water	05/25/21 09:30	05/28/21 09:45	
280-149165-6	MW-24s	Water	05/25/21 12:00	05/28/21 09:45	
280-149165-7	MW-19s	Water	05/26/21 09:25	05/28/21 09:45	
280-149165-8	MW-18s	Water	05/26/21 11:05	05/28/21 09:45	
280-149165-9	MW-21s	Water	05/26/21 12:30	05/28/21 09:45	
280-149165-10	DUP	Water	05/26/21 00:00	05/28/21 09:45	

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-17s
Date Collected: 05/25/21 10:35
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	156	F2 F1	100		ug/L		06/10/21 07:47	06/10/21 19:55	1
Calcium	4740	F2 F1	200		ug/L		06/10/21 07:47	06/10/21 19:55	1

Client Sample ID: MW-16s
Date Collected: 05/25/21 10:15
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	172		100		ug/L		06/24/21 10:30	06/25/21 12:09	1
Calcium	3960		200		ug/L		06/24/21 10:30	06/25/21 12:09	1

Client Sample ID: MW-15s
Date Collected: 05/25/21 09:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	155		100		ug/L		06/10/21 07:47	06/10/21 20:28	1
Calcium	5320		200		ug/L		06/10/21 07:47	06/10/21 20:28	1

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	147		100		ug/L		06/10/21 07:47	06/10/21 20:32	1
Calcium	2900		200		ug/L		06/10/21 07:47	06/10/21 20:32	1
Lithium	46.1		20.0		ug/L		06/24/21 10:30	06/25/21 12:39	1

Client Sample ID: MW-20s
Date Collected: 05/25/21 09:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	151		100		ug/L		06/10/21 07:47	06/10/21 20:36	1
Calcium	6730		200		ug/L		06/10/21 07:47	06/10/21 20:36	1

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	129		100		ug/L		06/10/21 07:47	06/10/21 20:40	1
Calcium	6080		200		ug/L		06/10/21 07:47	06/10/21 20:40	1
Lithium	77.9		20.0		ug/L		06/24/21 10:30	06/25/21 12:46	1

Client Sample ID: MW-19s
Date Collected: 05/26/21 09:25
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	166		100		ug/L		06/10/21 07:47	06/10/21 20:44	1
Calcium	4430		200		ug/L		06/10/21 07:47	06/10/21 20:44	1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-18s
Date Collected: 05/26/21 11:05
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**121**		100		ug/L		06/10/21 07:47	06/10/21 20:47	1
Calcium	**4360**		200		ug/L		06/10/21 07:47	06/10/21 20:47	1

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**155**		100		ug/L		06/10/21 07:47	06/10/21 20:51	1
Calcium	**8620**		200		ug/L		06/10/21 07:47	06/10/21 20:51	1
Lithium	**32.7**		20.0		ug/L		06/24/21 10:30	06/25/21 12:56	1

Client Sample ID: DUP
Date Collected: 05/26/21 00:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**164**		100		ug/L		06/10/21 07:47	06/10/21 20:55	1
Calcium	**4390**		200		ug/L		06/10/21 07:47	06/10/21 20:55	1
Lithium	**48.1**		20.0		ug/L		06/24/21 10:30	06/25/21 12:59	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Arsenic	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Barium	**53.3**		1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Beryllium	ND	^+	1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Cadmium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Chromium	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Cobalt	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Lead	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Molybdenum	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Selenium	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:39	1
Thallium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:39	1

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Arsenic	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Barium	**60.4**		1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Beryllium	ND	^+	1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Cadmium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Chromium	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Cobalt	**1.28**		1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Lead	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Molybdenum	**13.8**		2.00		ug/L		06/04/21 16:05	06/06/21 19:42	1

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

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:42	1
Thallium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:42	1

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Arsenic	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Barium	**53.5**		1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Beryllium	ND	^+	1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Cadmium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Chromium	ND		2.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Cobalt	**1.02**		1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Lead	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Molybdenum	**8.70**		2.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Selenium	ND		5.00		ug/L		06/04/21 16:05	06/06/21 19:46	1
Thallium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 19:46	1

Client Sample ID: DUP
Date Collected: 05/26/21 00:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.400	ug/L		06/04/21 16:05	06/06/21 19:50	1
Arsenic	**0.504**	**J**	5.00	0.330	ug/L		06/04/21 16:05	06/06/21 19:50	1
Barium	**46.0**		1.00	0.290	ug/L		06/04/21 16:05	06/06/21 19:50	1
Beryllium	ND	^+	1.00	0.0800	ug/L		06/04/21 16:05	06/06/21 19:50	1
Cadmium	ND		1.00	0.265	ug/L		06/04/21 16:05	06/06/21 19:50	1
Chromium	ND		2.00	0.500	ug/L		06/04/21 16:05	06/06/21 19:50	1
Cobalt	**0.225**	**J**	1.00	0.0923	ug/L		06/04/21 16:05	06/06/21 19:50	1
Lead	ND		1.00	0.180	ug/L		06/04/21 16:05	06/06/21 19:50	1
Molybdenum	**3.15**	**B**	2.00	0.140	ug/L		06/04/21 16:05	06/06/21 19:50	1
Selenium	ND		5.00	0.373	ug/L		06/04/21 16:05	06/06/21 19:50	1
Thallium	ND		1.00	0.0890	ug/L		06/04/21 16:05	06/06/21 19:50	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/11/21 16:00	06/11/21 19:47	1

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/11/21 16:00	06/11/21 19:49	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/11/21 16:00	06/11/21 19:57	1

Client Sample ID: DUP
Date Collected: 05/26/21 00:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/11/21 16:00	06/11/21 20:00	1

General Chemistry

Client Sample ID: MW-17s
Date Collected: 05/25/21 10:35
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.51		3.00		mg/L			06/14/21 19:39	1
Fluoride	1.49		0.500		mg/L			06/14/21 19:39	1
Sulfate	226		25.0		mg/L			06/14/21 19:53	5
Total Dissolved Solids (TDS)	1740		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-16s
Date Collected: 05/25/21 10:15
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.9		3.00		mg/L			06/14/21 20:38	1
Fluoride	1.84		0.500		mg/L			06/14/21 20:38	1
Sulfate	79.3		5.00		mg/L			06/14/21 20:38	1
Total Dissolved Solids (TDS)	1120		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-15s
Date Collected: 05/25/21 09:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.93		3.00		mg/L			06/14/21 21:08	1
Fluoride	1.47		0.500		mg/L			06/14/21 21:08	1
Sulfate	380		25.0		mg/L			06/14/21 21:23	5
Total Dissolved Solids (TDS)	1860		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.84		3.00		mg/L			06/14/21 21:38	1
Fluoride	1.69		0.500		mg/L			06/14/21 21:38	1
Sulfate	228		25.0		mg/L			06/14/21 21:53	5
Total Dissolved Solids (TDS)	1640	H	20.0		mg/L			06/01/21 09:58	1

General Chemistry

Client Sample ID: MW-20s
Date Collected: 05/25/21 09:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.8		3.00		mg/L			06/14/21 22:08	1
Fluoride	1.31		0.500		mg/L			06/14/21 22:08	1
Sulfate	71.7		5.00		mg/L			06/14/21 22:08	1
Total Dissolved Solids (TDS)	1840		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.9		3.00		mg/L			06/15/21 00:37	1
Fluoride	1.59		0.500		mg/L			06/15/21 00:37	1
Sulfate	35.2		5.00		mg/L			06/15/21 00:37	1
Total Dissolved Solids (TDS)	2040		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-19s
Date Collected: 05/26/21 09:25
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.1		3.00		mg/L			06/15/21 01:07	1
Fluoride	0.909		0.500		mg/L			06/15/21 01:07	1
Sulfate	707		25.0		mg/L			06/15/21 01:22	5
Total Dissolved Solids (TDS)	2120		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-18s
Date Collected: 05/26/21 11:05
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.78		3.00		mg/L			06/15/21 01:37	1
Fluoride	1.35		0.500		mg/L			06/15/21 01:37	1
Sulfate	395		25.0		mg/L			06/15/21 01:52	5
Total Dissolved Solids (TDS)	1670		20.0		mg/L			06/01/21 09:58	1

Client Sample ID: MW-21s
Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.7		3.00		mg/L			06/15/21 02:36	1
Fluoride	1.54		0.500		mg/L			06/15/21 02:36	1
Sulfate	617		25.0		mg/L			06/15/21 02:51	5
Total Dissolved Solids (TDS)	2240		40.0		mg/L			06/01/21 09:58	1

Client Sample ID: DUP
Date Collected: 05/26/21 00:00
Date Received: 05/28/21 09:45
Lab Sample ID: 280-149165-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.1		3.00		mg/L			06/15/21 03:06	1
Fluoride	0.903		0.500		mg/L			06/15/21 03:06	1
Sulfate	766		25.0		mg/L			06/15/21 03:21	5
Total Dissolved Solids (TDS)	2110		20.0		mg/L			06/01/21 09:58	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-539034/1-A
Matrix: Water
Analysis Batch: 539494

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 539034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		06/10/21 07:47	06/10/21 19:48	1
Calcium	ND		200		ug/L		06/10/21 07:47	06/10/21 19:48	1

Lab Sample ID: LCS 280-539034/2-A
Matrix: Water
Analysis Batch: 539494

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 539034

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	1041		ug/L		104	86 - 110
Calcium	50000	52340		ug/L		105	90 - 111

Lab Sample ID: 280-149165-1 MS
Matrix: Water
Analysis Batch: 539494

Client Sample ID: MW-17s
Prep Type: Total Recoverable
Prep Batch: 539034

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	156	F2 F1	1000	452.6	F1	ug/L		30	87 - 113
Calcium	4740	F2 F1	50000	21590	F1	ug/L		34	48 - 153

Lab Sample ID: 280-149165-1 MSD
Matrix: Water
Analysis Batch: 539494

Client Sample ID: MW-17s
Prep Type: Total Recoverable
Prep Batch: 539034

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	156	F2 F1	1000	1224	F2	ug/L		107	87 - 113	92	20
Calcium	4740	F2 F1	50000	57400	F2	ug/L		105	48 - 153	91	20

Lab Sample ID: MB 280-541058/1-A
Matrix: Water
Analysis Batch: 541298

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 541058

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		06/24/21 10:30	06/25/21 11:59	1
Calcium	ND		200		ug/L		06/24/21 10:30	06/25/21 11:59	1
Lithium	ND		20.0		ug/L		06/24/21 10:30	06/25/21 11:59	1

Lab Sample ID: LCS 280-541058/2-A
Matrix: Water
Analysis Batch: 541298

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 541058

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	977.8		ug/L		98	86 - 110
Calcium	50000	48690		ug/L		97	90 - 111
Lithium	1000	967.9		ug/L		97	90 - 112

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-149165-2 MS
Matrix: Water
Analysis Batch: 541298

Client Sample ID: MW-16s
Prep Type: Total Recoverable
Prep Batch: 541058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	172		1000	1171		ug/L		100	87 - 113
Calcium	3960		50000	52750		ug/L		98	48 - 153
Lithium	ND		1000	1016		ug/L		101	89 - 114

Lab Sample ID: 280-149165-2 MSD
Matrix: Water
Analysis Batch: 541298

Client Sample ID: MW-16s
Prep Type: Total Recoverable
Prep Batch: 541058

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	172		1000	1146		ug/L		97	87 - 113	2	20
Calcium	3960		50000	51860		ug/L		96	48 - 153	2	20
Lithium	ND		1000	995.7		ug/L		99	89 - 114	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-538556/1-A
Matrix: Water
Analysis Batch: 538827

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538556

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Arsenic	ND		5.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Barium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Beryllium	ND	^+	1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Cadmium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Chromium	ND		2.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Cobalt	ND		1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Lead	ND		1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Molybdenum	ND		2.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Selenium	ND		5.00		ug/L		06/04/21 16:05	06/06/21 18:43	1
Thallium	ND		1.00		ug/L		06/04/21 16:05	06/06/21 18:43	1

Lab Sample ID: LCS 280-538556/2-A
Matrix: Water
Analysis Batch: 538827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538556

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	36.93		ug/L		92	85 - 115
Arsenic	40.0	36.53		ug/L		91	85 - 117
Barium	40.0	38.02		ug/L		95	85 - 118
Beryllium	40.0	36.37	^+	ug/L		91	80 - 125
Cadmium	40.0	37.96		ug/L		95	85 - 115
Chromium	40.0	38.27		ug/L		96	84 - 121
Cobalt	40.0	37.77		ug/L		94	85 - 120
Lead	40.0	38.84		ug/L		97	85 - 118
Molybdenum	40.0	39.38		ug/L		98	85 - 119
Selenium	40.0	37.80		ug/L		95	77 - 122
Thallium	40.0	38.26		ug/L		96	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-539057/1-A
Matrix: Water
Analysis Batch: 539623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 539057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/11/21 16:00	06/11/21 19:27	1

Lab Sample ID: LCS 280-539057/2-A
Matrix: Water
Analysis Batch: 539623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 539057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.005032		mg/L		101	84 - 120

Lab Sample ID: LCSD 280-539057/3-A
Matrix: Water
Analysis Batch: 539623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 539057

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00500	0.005064		mg/L		101	84 - 120	1	15

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-539761/6
Matrix: Water
Analysis Batch: 539761

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			06/14/21 17:13	1
Fluoride	ND		0.500		mg/L			06/14/21 17:13	1
Sulfate	ND		5.00		mg/L			06/14/21 17:13	1

Lab Sample ID: LCS 280-539761/4
Matrix: Water
Analysis Batch: 539761

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.08		mg/L		97	90 - 110
Fluoride	5.00	4.664		mg/L		93	90 - 110
Sulfate	100	95.04		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-539761/5
Matrix: Water
Analysis Batch: 539761

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	97.12		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.667		mg/L		93	90 - 110	0	10
Sulfate	100	94.90		mg/L		95	90 - 110	0	10

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 280-539761/3
Matrix: Water
Analysis Batch: 539761

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	3.916		mg/L		78	50 - 150
Fluoride	0.500	0.5005		mg/L		100	50 - 150
Sulfate	5.00	ND		mg/L		76	50 - 150

Lab Sample ID: 280-149165-5 MS
Matrix: Water
Analysis Batch: 539761

Client Sample ID: MW-20s
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	19.8		50.0	70.58		mg/L		102	80 - 120
Fluoride	1.31		5.00	5.395		mg/L		82	80 - 120
Sulfate	71.7		50.0	127.9		mg/L		113	80 - 120

Lab Sample ID: 280-149165-5 MSD
Matrix: Water
Analysis Batch: 539761

Client Sample ID: MW-20s
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	19.8		50.0	70.80		mg/L		102	80 - 120	0	20
Fluoride	1.31		5.00	5.421		mg/L		82	80 - 120	0	20
Sulfate	71.7		50.0	128.3		mg/L		113	80 - 120	0	20

Lab Sample ID: 280-149165-5 DU
Matrix: Water
Analysis Batch: 539761

Client Sample ID: MW-20s
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	19.8		19.80		mg/L		0	15
Fluoride	1.31		1.317		mg/L		0.3	15
Sulfate	71.7		71.71		mg/L		0.08	15

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

Lab Sample ID: MB 280-538102/1
Matrix: Water
Analysis Batch: 538102

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 (TDS)	ND		10.0		mg/L			06/01/21 09:58	1

Lab Sample ID: LCS 280-538102/2
Matrix: Water
Analysis Batch: 538102

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 (TDS)	505	490.0		mg/L		97	88 - 114

Metals

Prep Batch: 538556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	3020A	
280-149165-6	MW-24s	Total/NA	Water	3020A	
280-149165-9	MW-21s	Total/NA	Water	3020A	
280-149165-10	DUP	Total/NA	Water	3020A	
MB 280-538556/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-538556/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 538827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	6020A	538556
280-149165-6	MW-24s	Total/NA	Water	6020A	538556
280-149165-9	MW-21s	Total/NA	Water	6020A	538556
280-149165-10	DUP	Total/NA	Water	6020A	538556
MB 280-538556/1-A	Method Blank	Total/NA	Water	6020A	538556
LCS 280-538556/2-A	Lab Control Sample	Total/NA	Water	6020A	538556

Prep Batch: 539034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-1	MW-17s	Total Recoverable	Water	3005A	
280-149165-3	MW-15s	Total Recoverable	Water	3005A	
280-149165-4	MW-22s	Total Recoverable	Water	3005A	
280-149165-5	MW-20s	Total Recoverable	Water	3005A	
280-149165-6	MW-24s	Total Recoverable	Water	3005A	
280-149165-7	MW-19s	Total Recoverable	Water	3005A	
280-149165-8	MW-18s	Total Recoverable	Water	3005A	
280-149165-9	MW-21s	Total Recoverable	Water	3005A	
280-149165-10	DUP	Total Recoverable	Water	3005A	
MB 280-539034/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-539034/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-149165-1 MS	MW-17s	Total Recoverable	Water	3005A	
280-149165-1 MSD	MW-17s	Total Recoverable	Water	3005A	

Prep Batch: 539057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	7470A	
280-149165-6	MW-24s	Total/NA	Water	7470A	
280-149165-9	MW-21s	Total/NA	Water	7470A	
280-149165-10	DUP	Total/NA	Water	7470A	
MB 280-539057/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-539057/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-539057/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 539494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-1	MW-17s	Total Recoverable	Water	6010C	539034
280-149165-3	MW-15s	Total Recoverable	Water	6010C	539034
280-149165-4	MW-22s	Total Recoverable	Water	6010C	539034
280-149165-5	MW-20s	Total Recoverable	Water	6010C	539034
280-149165-6	MW-24s	Total Recoverable	Water	6010C	539034
280-149165-7	MW-19s	Total Recoverable	Water	6010C	539034

Metals (Continued)

Analysis Batch: 539494 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-8	MW-18s	Total Recoverable	Water	6010C	539034
280-149165-9	MW-21s	Total Recoverable	Water	6010C	539034
280-149165-10	DUP	Total Recoverable	Water	6010C	539034
MB 280-539034/1-A	Method Blank	Total Recoverable	Water	6010C	539034
LCS 280-539034/2-A	Lab Control Sample	Total Recoverable	Water	6010C	539034
280-149165-1 MS	MW-17s	Total Recoverable	Water	6010C	539034
280-149165-1 MSD	MW-17s	Total Recoverable	Water	6010C	539034

Analysis Batch: 539623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-4	MW-22s	Total/NA	Water	7470A	539057
280-149165-6	MW-24s	Total/NA	Water	7470A	539057
280-149165-9	MW-21s	Total/NA	Water	7470A	539057
280-149165-10	DUP	Total/NA	Water	7470A	539057
MB 280-539057/1-A	Method Blank	Total/NA	Water	7470A	539057
LCS 280-539057/2-A	Lab Control Sample	Total/NA	Water	7470A	539057
LCSD 280-539057/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	539057

Prep Batch: 541058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-2	MW-16s	Total Recoverable	Water	3005A	
280-149165-4	MW-22s	Total Recoverable	Water	3005A	
280-149165-6	MW-24s	Total Recoverable	Water	3005A	
280-149165-9	MW-21s	Total Recoverable	Water	3005A	
280-149165-10	DUP	Total Recoverable	Water	3005A	
MB 280-541058/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-541058/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-149165-2 MS	MW-16s	Total Recoverable	Water	3005A	
280-149165-2 MSD	MW-16s	Total Recoverable	Water	3005A	

Analysis Batch: 541298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-2	MW-16s	Total Recoverable	Water	6010C	541058
280-149165-4	MW-22s	Total Recoverable	Water	6010C	541058
280-149165-6	MW-24s	Total Recoverable	Water	6010C	541058
280-149165-9	MW-21s	Total Recoverable	Water	6010C	541058
280-149165-10	DUP	Total Recoverable	Water	6010C	541058
MB 280-541058/1-A	Method Blank	Total Recoverable	Water	6010C	541058
LCS 280-541058/2-A	Lab Control Sample	Total Recoverable	Water	6010C	541058
280-149165-2 MS	MW-16s	Total Recoverable	Water	6010C	541058
280-149165-2 MSD	MW-16s	Total Recoverable	Water	6010C	541058

General Chemistry

Analysis Batch: 538102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-1	MW-17s	Total/NA	Water	SM 2540C	
280-149165-2	MW-16s	Total/NA	Water	SM 2540C	
280-149165-3	MW-15s	Total/NA	Water	SM 2540C	
280-149165-4	MW-22s	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 538102 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-5	MW-20s	Total/NA	Water	SM 2540C	
280-149165-6	MW-24s	Total/NA	Water	SM 2540C	
280-149165-7	MW-19s	Total/NA	Water	SM 2540C	
280-149165-8	MW-18s	Total/NA	Water	SM 2540C	
280-149165-9	MW-21s	Total/NA	Water	SM 2540C	
280-149165-10	DUP	Total/NA	Water	SM 2540C	
MB 280-538102/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-538102/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 539761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149165-1	MW-17s	Total/NA	Water	9056A	
280-149165-1	MW-17s	Total/NA	Water	9056A	
280-149165-2	MW-16s	Total/NA	Water	9056A	
280-149165-3	MW-15s	Total/NA	Water	9056A	
280-149165-3	MW-15s	Total/NA	Water	9056A	
280-149165-4	MW-22s	Total/NA	Water	9056A	
280-149165-4	MW-22s	Total/NA	Water	9056A	
280-149165-5	MW-20s	Total/NA	Water	9056A	
280-149165-6	MW-24s	Total/NA	Water	9056A	
280-149165-7	MW-19s	Total/NA	Water	9056A	
280-149165-7	MW-19s	Total/NA	Water	9056A	
280-149165-8	MW-18s	Total/NA	Water	9056A	
280-149165-8	MW-18s	Total/NA	Water	9056A	
280-149165-9	MW-21s	Total/NA	Water	9056A	
280-149165-9	MW-21s	Total/NA	Water	9056A	
280-149165-10	DUP	Total/NA	Water	9056A	
280-149165-10	DUP	Total/NA	Water	9056A	
MB 280-539761/6	Method Blank	Total/NA	Water	9056A	
LCS 280-539761/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-539761/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-539761/3	Lab Control Sample	Total/NA	Water	9056A	
280-149165-5 MS	MW-20s	Total/NA	Water	9056A	
280-149165-5 MSD	MW-20s	Total/NA	Water	9056A	
280-149165-5 DU	MW-20s	Total/NA	Water	9056A	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-17s
Date Collected: 05/25/21 10:35
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 19:55	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/14/21 19:39	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/14/21 19:53	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-16s
Date Collected: 05/25/21 10:15
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	541058	06/24/21 10:30	NK	TAL DEN
Total Recoverable	Analysis	6010C		1			541298	06/25/21 12:09	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/14/21 20:38	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-15s
Date Collected: 05/25/21 09:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:28	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/14/21 21:08	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/14/21 21:23	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-22s
Date Collected: 05/24/21 14:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	541058	06/24/21 10:30	NK	TAL DEN
Total Recoverable	Analysis	6010C		1			541298	06/25/21 12:39	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:32	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	538556	06/04/21 16:05	EC	TAL DEN
Total/NA	Analysis	6020A		1			538827	06/06/21 19:39	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	539057	06/11/21 16:00	NK	TAL DEN
Total/NA	Analysis	7470A		1			539623	06/11/21 19:47	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/14/21 21:38	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/14/21 21:53	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-20s
Date Collected: 05/25/21 09:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:36	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/14/21 22:08	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-24s
Date Collected: 05/25/21 12:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	541058	06/24/21 10:30	NK	TAL DEN
Total Recoverable	Analysis	6010C		1			541298	06/25/21 12:46	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:40	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	538556	06/04/21 16:05	EC	TAL DEN
Total/NA	Analysis	6020A		1			538827	06/06/21 19:42	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	539057	06/11/21 16:00	NK	TAL DEN
Total/NA	Analysis	7470A		1			539623	06/11/21 19:49	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/15/21 00:37	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-19s
Date Collected: 05/26/21 09:25
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:44	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/15/21 01:07	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/15/21 01:22	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: MW-18s
Date Collected: 05/26/21 11:05
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:47	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/15/21 01:37	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/15/21 01:52	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Client Sample ID: MW-21s

Date Collected: 05/26/21 12:30
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	541058	06/24/21 10:30	NK	TAL DEN
Total Recoverable	Analysis	6010C		1			541298	06/25/21 12:56	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:51	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	538556	06/04/21 16:05	EC	TAL DEN
Total/NA	Analysis	6020A		1			538827	06/06/21 19:46	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	539057	06/11/21 16:00	NK	TAL DEN
Total/NA	Analysis	7470A		1			539623	06/11/21 19:57	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/15/21 02:36	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/15/21 02:51	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Client Sample ID: DUP

Date Collected: 05/26/21 00:00
Date Received: 05/28/21 09:45

Lab Sample ID: 280-149165-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	541058	06/24/21 10:30	NK	TAL DEN
Total Recoverable	Analysis	6010C		1			541298	06/25/21 12:59	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	539034	06/10/21 07:47	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			539494	06/10/21 20:55	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	538556	06/04/21 16:05	EC	TAL DEN
Total/NA	Analysis	6020A		1			538827	06/06/21 19:50	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	539057	06/11/21 16:00	NK	TAL DEN
Total/NA	Analysis	7470A		1			539623	06/11/21 20:00	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	539761	06/15/21 03:06	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	539761	06/15/21 03:21	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	538102	06/01/21 09:58	LRB	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- BEPC AVS LANDFILL

Job ID: 280-149165-2
SDG: BEPC AVS LANDFILL

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

280-149165 Chain of Custody

Eurofins | Environment Testing America

Client Information	Sampler: AARON Knutson	Lab PM: Turner, Shelby R	
Client Contact: Mr. Kevin Solie	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com	
Company: Basin Electric Power Cooperative			
Address: 1717 East Interstate Avenue	Due Date Requested:		
City: Bismarck	TAT Requested (days): STANDARD		
State, Zip: ND, 58503			
Phone: 701-202-5096(Tel)	PO #: Purchase Order Requested		
Email: ksolie@bepc.com	WO #:		
Project Name: CCR Groundwater - North Dakota Site	Project #: 28021258		
Site: BEPC AVS LANDFILL	SSOW#:		

Analysis Requested

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)	6010C - Total B, Ca, Li (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (APP III + IV)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9315_Ra226, 9320_Ra226, Combined Radium-226 and Radium-228	6010C - Total Calcium and Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N			D		
MW-17s	5-25-21	1035	G	Water	N			X	X		X		pH - 7.87
MW-16s	5-25-21	1015	G	Water	N			X	X		X		pH - 8.72
MW-15s	5-25-21	0900	G	Water	N			X	X		X		pH - 7.77
MW-22s	5-24-21	1430	G	Water	N		X	X	X	X	X		pH - 7.99
MW-20s	5-25-21	0930	G	Water	N			X	X		X		pH - 7.84
MW-24s	5-25-21	1200	G	Water	N		X	X	X	X	X		pH - 7.80
MW-19s	5-26-21	0925	G	Water	N			X	X		X		pH - 7.87
MW-18s	5-26-21	1105	G	Water	N			X	X		X		pH - 9.09
MW-21s	5-26-21	1230	G	Water	N		X	X	X	X	X		pH - 7.83
DUP			G	Water	N								
				Water									

Preservation Codes:

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

Other:

Job #:

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:	Date/Time: 5-27-21	Company: BEPC	Received by: Jot
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Received by: Jot	Date/Time: 05/28/2021 0945	Company: ETADEN	
Received by:	Date/Time:	Company:	
Received by:	Date/Time:	Company:	

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

Cooler Temperature(s) °C and Other Remarks: 1.9, 0.1 IR11 +0.4

Ver: 01/16/2019

0.1

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY21
ACTWGT: 53.00 LB
CAD: 251286197/INET43

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100 REF CCR GROUNDWATER - ND SITE
INV
PO DEPT

280-149165 Waybill

FRI - 28 MAY
PRIORITY OVER

1 of 2

TRK# 0201 7738 4062 5640

MASTER

XH LAAA

CO-US

FedEx Ship Manager - Print Your Label(s)

5/27/2021

1553032

eurofins

Cust DATE SIGNATURE

650 4 10:30 E

Job ID: 280-144231-1

650

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY21
ACTWGT: 54.00 LB
CAD: 25128619/INET4340

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV
PO

REF: CCR GROUNDWATER - ND SITE

DEPT

56DJ3/710C/FE4A

FedEx Express

2 of 2
MPS# 0263 7738 4062 5559
Mstr# 7738 4062 5640

FRI - 28 MAY 10:30A
PRIORITY OVERNIGHT

0201

XH LAAA

80002
CO-US DEN

FedEx Ship Manager - Print Your Label(s)

5/27/2021

eurofins | Environment Testing TestAmerica

1553033

SIGN

DATE

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-149165-2
SDG Number: BEPC AVS LANDFILL

Login Number: 149165
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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 containers received and the COC.	False	Refer to Job Narrative for details.
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.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-151104-1
Client Project/Site: CCR Groundwater - ND Sites - AVS New Wells

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
8/27/2021 1:58:39 PM

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Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Qualifiers

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
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: 280-151104-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS New Wells

Report Number: 280-151104-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

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.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/23/2021 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.6º C.

Receipt Exceptions

The container labels for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-22S (280-151104-2). The container labels note collection time 10:20, while the COC notes 10:25. The sample was logged per the collection time on the COC unless instructed otherwise.

Samples requesting radiochemistry analyses are reported separately under SDG (280-151104-1) per reporting format requirements for radiochemistry analyses. All other analyses requested on the COC are reported under SDG (280-151104-2).

RADIUM-226 (GFPC)

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 08/03/2021 and analyzed on 08/25/2021.

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

RADIUM-228

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/03/2021 and analyzed on 08/23/2021.

The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 for Radium-228: MW-21S (280-151104-1), MW-22S (280-151104-2), MW-24S (280-151104-3), (LCS 160-521210/1-A), and (MB 160-521210/22-A). Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40%.

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

Job ID: 280-151104-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 08/26/2021.

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

Detection Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Client Sample ID: MW-21S
Lab Sample ID: 280-151104-1

No Detections.

Client Sample ID: MW-22S
Lab Sample ID: 280-151104-2

No Detections.

Client Sample ID: MW-24S
Lab Sample ID: 280-151104-3

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-151104-1	MW-21S	Water	07/21/21 09:20	07/23/21 09:20
280-151104-2	MW-22S	Water	07/21/21 10:25	07/23/21 09:20
280-151104-3	MW-24S	Water	07/21/21 11:20	07/23/21 09:20

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.143	U	0.179	0.179	1.00	0.296	pCi/L	08/03/21 11:32	08/25/21 09:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.4*		*40 - 110*	*08/03/21 11:32*	*08/25/21 09:37*	*1*

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.355**		0.237	0.240	1.00	0.340	pCi/L	08/03/21 11:32	08/25/21 09:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.3*		*40 - 110*	*08/03/21 11:32*	*08/25/21 09:37*	*1*

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0143	U	0.163	0.163	1.00	0.317	pCi/L	08/03/21 11:32	08/25/21 09:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.3*		*40 - 110*	*08/03/21 11:32*	*08/25/21 09:37*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.670**		0.279	0.286	1.00	0.385	pCi/L	08/03/21 12:21	08/23/21 12:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.4*		*40 - 110*	*08/03/21 12:21*	*08/23/21 12:57*	*1*
Y Carrier	*96.7*		*40 - 110*	*08/03/21 12:21*	*08/23/21 12:57*	*1*

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.166	U	0.288	0.288	1.00	0.489	pCi/L	08/03/21 12:21	08/23/21 12:57	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.3		40 - 110	08/03/21 12:21	08/23/21 12:57	1
Y Carrier	93.8		40 - 110	08/03/21 12:21	08/23/21 12:57	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.32		0.505	0.590	1.00	0.513	pCi/L	08/03/21 12:21	08/23/21 13:02	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	08/03/21 12:21	08/23/21 13:02	1
Y Carrier	93.5		40 - 110	08/03/21 12:21	08/23/21 13:02	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.813		0.331	0.337	5.00	0.385	pCi/L		08/26/21 20:22	1

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.521		0.373	0.375	5.00	0.489	pCi/L		08/26/21 20:22	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.34		0.531	0.612	5.00	0.513	pCi/L		08/26/21 20:22	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-521190/22-A
Matrix: Water
Analysis Batch: 523974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 521190

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0000	U	0.125	0.125	1.00	0.248	pCi/L	08/03/21 11:32	08/25/21 09:38	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*08/03/21 11:32*	*08/25/21 09:38*	*1*

Lab Sample ID: LCS 160-521190/1-A
Matrix: Water
Analysis Batch: 523975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 521190

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.43		1.23	1.00	0.249	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-521210/22-A
Matrix: Water
Analysis Batch: 523840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 521210

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1671	U	0.233	0.234	1.00	0.390	pCi/L	08/03/21 12:21	08/23/21 13:03	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*08/03/21 12:21*	*08/23/21 13:03*	*1*
Y Carrier	*95.5*		*40 - 110*	*08/03/21 12:21*	*08/23/21 13:03*	*1*

Lab Sample ID: LCS 160-521210/1-A
Matrix: Water
Analysis Batch: 523742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 521210

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.40	8.627		1.01	1.00	0.341	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.1*		*40 - 110*
Y Carrier	*96.1*		*40 - 110*

QC Association Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Rad

Prep Batch: 521190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	PrecSep-21	
280-151104-2	MW-22S	Total/NA	Water	PrecSep-21	
280-151104-3	MW-24S	Total/NA	Water	PrecSep-21	
MB 160-521190/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-521190/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 521210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	PrecSep_0	
280-151104-2	MW-22S	Total/NA	Water	PrecSep_0	
280-151104-3	MW-24S	Total/NA	Water	PrecSep_0	
MB 160-521210/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-521210/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Client Sample ID: MW-21S
Lab Sample ID: 280-151104-1
Date Collected: 07/21/21 09:20
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.78 mL	1.0 g	521190	08/03/21 11:32	HRT	TAL SL
Total/NA	Analysis	9315		1			523974	08/25/21 09:37	SCB	TAL SL
Total/NA	Prep	PrecSep_0			750.78 mL	1.0 g	521210	08/03/21 12:21	HRT	TAL SL
Total/NA	Analysis	9320		1			523742	08/23/21 12:57	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			524271	08/26/21 20:22	EMH	TAL SL

Client Sample ID: MW-22S
Lab Sample ID: 280-151104-2
Date Collected: 07/21/21 10:25
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.03 mL	1.0 g	521190	08/03/21 11:32	HRT	TAL SL
Total/NA	Analysis	9315		1			523974	08/25/21 09:37	SCB	TAL SL
Total/NA	Prep	PrecSep_0			751.03 mL	1.0 g	521210	08/03/21 12:21	HRT	TAL SL
Total/NA	Analysis	9320		1			523742	08/23/21 12:57	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			524271	08/26/21 20:22	EMH	TAL SL

Client Sample ID: MW-24S
Lab Sample ID: 280-151104-3
Date Collected: 07/21/21 11:20
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.52 mL	1.0 g	521190	08/03/21 11:32	HRT	TAL SL
Total/NA	Analysis	9315		1			523974	08/25/21 09:37	SCB	TAL SL
Total/NA	Prep	PrecSep_0			749.52 mL	1.0 g	521210	08/03/21 12:21	HRT	TAL SL
Total/NA	Analysis	9320		1			523840	08/23/21 13:02	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			524271	08/26/21 20:22	EMH	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

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	06-30-22
California	State	2886	06-30-21 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-21 *
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21 *
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-22

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

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page:
Company: Basin Electric Power Cooperative		Analysis Requested		Job #:
Address: 3901 Highway 200A	Due Date Requested:			Preservation Codes:
City: Stanton	TAT Requested (days): Standard			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)
State, Zip: ND, 58571				
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested			Other:
Email: aknutson@bepc.com	WO #:			
Project Name: CCR Groundwater - North Dakota Site	Project #: 28021258			
Site:	SSOW#:			

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)	6010C - Total Calcium and Boron (Appendix III)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9315_Ra226; 9320_Ra228; Combined Radium-226 and Radium-228	6010C - Total B, Ca, Li (1 of 3); 6020A - Total 11 Metals (2 of 3); 7470A - Total Mercury (3 of 3) (Appendix III + IV)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D	D		
MW-21S	7-21-21	0920	G	Water	N		X	X	X	X	X		
MW-22S	7-21-21	1025	G	Water	N		X	X	X	X	X		
MW-24S	7-21-21	1120	G	Water	N		X	X	X	X	X		
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									

280-151104 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
	7-22-21 0730			07/23/21 0720	STAPLN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 0.0 CF +0.6 IR#12

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 22JUL21
ACTWGT: 53.00 LB
CAD: 251286197/INET4400

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENV
4955 YARROW ST

ARVADA CO 80002

1553037

(303) 736-0100

REF: CCR GROUNDWATER - NU SITE

INV

PO DEPT

FedEx Express

FRI - 23 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7743 2740 4723

80002
CO-US DEN

XH LAAA

280-151104 Waybill

FedEx Ship Manager - Print Your Label(s)

7/22/2021

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-578233.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@Eurofinset.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-151104-1
Address: 13715 Rider Trail North,	Due Date Requested: 8/23/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR Groundwater - ND Sites -	Project #: 28021258			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - 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)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-21S (280-151104-1)	7/21/21	09:20 Central		Water			X	X	X	2	
MW-22S (280-151104-2)	7/21/21	10:25 Central		Water			X	X	X	2	
MW-24S (280-151104-3)	7/21/21	11:20 Central		Water			X	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: 7/20/21 1345	Company TAL	Received by: FED EX	Date/Time:	Company
Relinquished by: FED EX	Date/Time:	Company	Received by: Micha Kemminger	Date/Time: JUL 27 2021 15:15	Company EDA STL
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: 06/08/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-151104-1

Login Number: 151104
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins TestAmerica, Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-151104-1

Login Number: 151104
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 07/27/21 08:08 PM

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	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-1
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-151104-1	MW-21S	93.4
280-151104-2	MW-22S	80.3
280-151104-3	MW-24S	94.3
LCS 160-521190/1-A	Lab Control Sample	85.1
MB 160-521190/22-A	Method Blank	90.4

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-151104-1	MW-21S	93.4	96.7
280-151104-2	MW-22S	80.3	93.8
280-151104-3	MW-24S	94.3	93.5
LCS 160-521210/1-A	Lab Control Sample	85.1	96.1
MB 160-521210/22-A	Method Blank	90.4	95.5

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-151104-2
Client Project/Site: CCR Groundwater - ND Sites - AVS New Wells

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
8/11/2021 10:56:04 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

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: 280-151104-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS New Wells

Report Number: 280-151104-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/23/2021 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.6º C.

Receipt Exceptions

The container labels for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-22S (280-151104-2). The container labels note collection time 10:20, while the COC notes 10:25. The sample was logged per the collection time on the COC unless instructed otherwise.

Samples requesting radiochemistry analyses are reported separately under SDG (280-151104-1) per reporting format requirements for radiochemistry analyses. All other analyses requested on the COC are reported
under SDG (280-151104-2).

TOTAL RECOVERABLE METALS

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/03/2021 and analyzed on 08/04/2021 and 08/10/2021.

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

TOTAL METALS (ICPMS)

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared on 08/02/2021 and analyzed on 08/03/2021.

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

TOTAL MERCURY

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 08/05/2021.

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

TOTAL DISSOLVED SOLIDS

Job ID: 280-151104-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 07/27/2021.

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

ANIONS (28 DAYS)

Samples MW-21S (280-151104-1), MW-22S (280-151104-2) and MW-24S (280-151104-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 08/04/2021 and 08/05/2021.

Samples MW-21S (280-151104-1)[5X] and MW-22S (280-151104-2)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Client Sample ID: MW-21S — Lab Sample ID: 280-151104-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	141		100		ug/L	1		6010C	Total Recoverable
Calcium	6600		200		ug/L	1		6010C	Total Recoverable
Lithium	42.6		20.0		ug/L	1		6010C	Total Recoverable
Barium	50.8		1.00		ug/L	1		6020A	Total/NA
Molybdenum	5.82		2.00		ug/L	1		6020A	Total/NA
Chloride	16.0		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.20		0.500		mg/L	1		9056A	Total/NA
Sulfate	618		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2270		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-22S — Lab Sample ID: 280-151104-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	149		100		ug/L	1		6010C	Total Recoverable
Calcium	2740		200		ug/L	1		6010C	Total Recoverable
Lithium	55.1		20.0		ug/L	1		6010C	Total Recoverable
Barium	55.0		1.00		ug/L	1		6020A	Total/NA
Chloride	9.58		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.50		0.500		mg/L	1		9056A	Total/NA
Sulfate	253		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1660		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-24S — Lab Sample ID: 280-151104-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	120		100		ug/L	1		6010C	Total Recoverable
Calcium	5620		200		ug/L	1		6010C	Total Recoverable
Lithium	79.3		20.0		ug/L	1		6010C	Total Recoverable
Antimony	2.67		2.00		ug/L	1		6020A	Total/NA
Barium	53.6		1.00		ug/L	1		6020A	Total/NA
Cobalt	1.33		1.00		ug/L	1		6020A	Total/NA
Molybdenum	13.2		2.00		ug/L	1		6020A	Total/NA
Chloride	48.5		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.22		0.500		mg/L	1		9056A	Total/NA
Sulfate	42.1		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	2040		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-151104-1	MW-21S	Water	07/21/21 09:20	07/23/21 09:20
280-151104-2	MW-22S	Water	07/21/21 10:25	07/23/21 09:20
280-151104-3	MW-24S	Water	07/21/21 11:20	07/23/21 09:20

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**141**		100		ug/L		08/03/21 07:04	08/04/21 12:08	1
Calcium	**6600**		200		ug/L		08/03/21 07:04	08/04/21 12:08	1
Lithium	**42.6**		20.0		ug/L		08/03/21 07:04	08/10/21 01:54	1

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**149**		100		ug/L		08/03/21 07:04	08/04/21 12:24	1
Calcium	**2740**		200		ug/L		08/03/21 07:04	08/04/21 12:24	1
Lithium	**55.1**		20.0		ug/L		08/03/21 07:04	08/10/21 02:08	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**120**		100		ug/L		08/03/21 07:04	08/04/21 12:27	1
Calcium	**5620**		200		ug/L		08/03/21 07:04	08/04/21 12:27	1
Lithium	**79.3**		20.0		ug/L		08/03/21 07:04	08/10/21 02:11	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Arsenic	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Barium	**50.8**		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Beryllium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Cadmium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Chromium	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Cobalt	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Lead	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Molybdenum	**5.82**		2.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Selenium	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:43	1
Thallium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:43	1

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Arsenic	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Barium	**55.0**		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Beryllium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Cadmium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Chromium	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Cobalt	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Lead	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Molybdenum	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:47	1

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

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:47	1
Thallium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:47	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**2.67**		2.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Arsenic	ND		5.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Barium	**53.6**		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Beryllium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Cadmium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Chromium	ND		2.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Cobalt	**1.33**		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Lead	ND		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Molybdenum	**13.2**		2.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Selenium	ND		5.00		ug/L		08/02/21 14:35	08/03/21 09:05	1
Thallium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 09:05	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		08/05/21 16:30	08/05/21 22:28	1

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		08/05/21 16:30	08/05/21 22:30	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		08/05/21 16:30	08/05/21 22:33	1

General Chemistry

Client Sample ID: MW-21S
Date Collected: 07/21/21 09:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16.0**		3.00		mg/L			08/04/21 23:36	1
Fluoride	**1.20**		0.500		mg/L			08/04/21 23:36	1
Sulfate	**618**		25.0		mg/L			08/04/21 23:50	5
Total Dissolved Solids (TDS)	**2270**		40.0		mg/L			07/27/21 11:39	1

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

General Chemistry

Client Sample ID: MW-22S
Date Collected: 07/21/21 10:25
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.58		3.00		mg/L			08/05/21 00:04	1
Fluoride	1.50		0.500		mg/L			08/05/21 00:04	1
Sulfate	253		25.0		mg/L			08/05/21 00:18	5
Total Dissolved Solids (TDS)	1660		20.0		mg/L			07/27/21 11:39	1

Client Sample ID: MW-24S
Date Collected: 07/21/21 11:20
Date Received: 07/23/21 09:20
Lab Sample ID: 280-151104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	48.5		3.00		mg/L			08/05/21 00:32	1
Fluoride	1.22		0.500		mg/L			08/05/21 00:32	1
Sulfate	42.1		5.00		mg/L			08/05/21 00:32	1
Total Dissolved Solids (TDS)	2040		20.0		mg/L			07/27/21 11:39	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-544843/1-A
Matrix: Water
Analysis Batch: 545431

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		08/03/21 07:04	08/04/21 12:02	1
Calcium	ND		200		ug/L		08/03/21 07:04	08/04/21 12:02	1

Lab Sample ID: MB 280-544843/1-A
Matrix: Water
Analysis Batch: 545984

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		20.0		ug/L		08/03/21 07:04	08/10/21 01:47	1

Lab Sample ID: LCS 280-544843/2-A
Matrix: Water
Analysis Batch: 545431

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	1023		ug/L		102	86 - 110
Calcium	50000	50330		ug/L		101	90 - 111

Lab Sample ID: LCS 280-544843/2-A
Matrix: Water
Analysis Batch: 545984

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1000	1014		ug/L		101	90 - 112

Lab Sample ID: 280-151104-1 MS
Matrix: Water
Analysis Batch: 545431

Client Sample ID: MW-21S
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	141		1000	1149		ug/L		101	87 - 113
Calcium	6600		50000	55870		ug/L		99	48 - 153

Lab Sample ID: 280-151104-1 MS
Matrix: Water
Analysis Batch: 545984

Client Sample ID: MW-21S
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	42.6		1000	1066		ug/L		102	89 - 114

Lab Sample ID: 280-151104-1 MSD
Matrix: Water
Analysis Batch: 545431

Client Sample ID: MW-21S
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	141		1000	1166		ug/L		103	87 - 113	1	20
Calcium	6600		50000	56280		ug/L		99	48 - 153	1	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-151104-1 MSD
Matrix: Water
Analysis Batch: 545984

Client Sample ID: MW-21S
Prep Type: Total Recoverable
Prep Batch: 544843

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	42.6		1000	1066		ug/L		102	89 - 114	0	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-544847/1-A
Matrix: Water
Analysis Batch: 545240

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 544847

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Arsenic	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Barium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Beryllium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Cadmium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Chromium	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Cobalt	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Lead	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Molybdenum	ND		2.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Selenium	ND		5.00		ug/L		08/02/21 14:35	08/03/21 08:35	1
Thallium	ND		1.00		ug/L		08/02/21 14:35	08/03/21 08:35	1

Lab Sample ID: LCS 280-544847/2-A
Matrix: Water
Analysis Batch: 545240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 544847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	37.38		ug/L		93	85 - 115
Arsenic	40.0	39.07		ug/L		98	85 - 117
Barium	40.0	39.52		ug/L		99	85 - 118
Beryllium	40.0	39.82		ug/L		100	80 - 125
Cadmium	40.0	38.77		ug/L		97	85 - 115
Chromium	40.0	40.71		ug/L		102	84 - 121
Cobalt	40.0	40.51		ug/L		101	85 - 120
Lead	40.0	40.40		ug/L		101	85 - 118
Molybdenum	40.0	40.23		ug/L		101	85 - 119
Selenium	40.0	41.77		ug/L		104	77 - 122
Thallium	40.0	39.01		ug/L		98	85 - 118

Lab Sample ID: 280-151104-2 MS
Matrix: Water
Analysis Batch: 545240

Client Sample ID: MW-22S
Prep Type: Total/NA
Prep Batch: 544847

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		40.0	40.27		ug/L		101	85 - 115
Arsenic	ND		40.0	40.41		ug/L		101	85 - 117
Barium	55.0		40.0	96.01		ug/L		103	85 - 118
Beryllium	ND		40.0	42.71		ug/L		107	80 - 125
Cadmium	ND		40.0	39.12		ug/L		98	85 - 115
Chromium	ND		40.0	40.29		ug/L		99	84 - 121

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

Lab Sample ID: 280-151104-2 MS
Matrix: Water
Analysis Batch: 545240

Client Sample ID: MW-22S
Prep Type: Total/NA
Prep Batch: 544847

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	ND		40.0	39.90		ug/L		98	85 - 120
Lead	ND		40.0	38.09		ug/L		95	85 - 118
Molybdenum	ND		40.0	40.97		ug/L		100	85 - 119
Selenium	ND		40.0	40.43		ug/L		101	77 - 122
Thallium	ND		40.0	37.00		ug/L		92	85 - 118

Lab Sample ID: 280-151104-2 MSD
Matrix: Water
Analysis Batch: 545240

Client Sample ID: MW-22S
Prep Type: Total/NA
Prep Batch: 544847

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		40.0	40.07		ug/L		100	85 - 115	1	20
Arsenic	ND		40.0	40.19		ug/L		100	85 - 117	1	20
Barium	55.0		40.0	95.26		ug/L		101	85 - 118	1	20
Beryllium	ND		40.0	44.02		ug/L		110	80 - 125	3	20
Cadmium	ND		40.0	38.60		ug/L		96	85 - 115	1	20
Chromium	ND		40.0	40.98		ug/L		101	84 - 121	2	20
Cobalt	ND		40.0	40.24		ug/L		99	85 - 120	1	20
Lead	ND		40.0	37.98		ug/L		95	85 - 118	0	20
Molybdenum	ND		40.0	41.96		ug/L		103	85 - 119	2	20
Selenium	ND		40.0	41.67		ug/L		104	77 - 122	3	20
Thallium	ND		40.0	37.08		ug/L		93	85 - 118	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-545527/1-A
Matrix: Water
Analysis Batch: 545689

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 545527

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		08/05/21 16:30	08/05/21 21:42	1

Lab Sample ID: LCS 280-545527/2-A
Matrix: Water
Analysis Batch: 545689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 545527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.004954		mg/L		99	84 - 120

Lab Sample ID: LCSD 280-545527/3-A
Matrix: Water
Analysis Batch: 545689

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 545527

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00500	0.005012		mg/L		100	84 - 120	1	15

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-545311/6
Matrix: Water
Analysis Batch: 545311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			08/04/21 17:46	1
Fluoride	ND		0.500		mg/L			08/04/21 17:46	1
Sulfate	ND		5.00		mg/L			08/04/21 17:46	1

Lab Sample ID: LCS 280-545311/4
Matrix: Water
Analysis Batch: 545311

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.06		mg/L		96	90 - 110
Fluoride	5.00	4.725		mg/L		95	90 - 110
Sulfate	100	97.09		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-545311/5
Matrix: Water
Analysis Batch: 545311

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.99		mg/L		96	90 - 110	0	10
Fluoride	5.00	4.709		mg/L		94	90 - 110	0	10
Sulfate	100	96.98		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-545311/3
Matrix: Water
Analysis Batch: 545311

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.759		mg/L		95	50 - 150
Fluoride	0.500	ND		mg/L		100	50 - 150
Sulfate	5.00	ND		mg/L		98	50 - 150

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

Lab Sample ID: MB 280-544446/1
Matrix: Water
Analysis Batch: 544446

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 (TDS)	ND		10.0		mg/L			07/27/21 11:39	1

Lab Sample ID: LCS 280-544446/2
Matrix: Water
Analysis Batch: 544446

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 (TDS)	502	497.0		mg/L		99	88 - 114

Metals

Prep Batch: 544843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total Recoverable	Water	3005A	
280-151104-2	MW-22S	Total Recoverable	Water	3005A	
280-151104-3	MW-24S	Total Recoverable	Water	3005A	
MB 280-544843/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-544843/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-151104-1 MS	MW-21S	Total Recoverable	Water	3005A	
280-151104-1 MSD	MW-21S	Total Recoverable	Water	3005A	

Prep Batch: 544847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	3020A	
280-151104-2	MW-22S	Total/NA	Water	3020A	
280-151104-3	MW-24S	Total/NA	Water	3020A	
MB 280-544847/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-544847/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-151104-2 MS	MW-22S	Total/NA	Water	3020A	
280-151104-2 MSD	MW-22S	Total/NA	Water	3020A	

Analysis Batch: 545240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	6020A	544847
280-151104-2	MW-22S	Total/NA	Water	6020A	544847
280-151104-3	MW-24S	Total/NA	Water	6020A	544847
MB 280-544847/1-A	Method Blank	Total/NA	Water	6020A	544847
LCS 280-544847/2-A	Lab Control Sample	Total/NA	Water	6020A	544847
280-151104-2 MS	MW-22S	Total/NA	Water	6020A	544847
280-151104-2 MSD	MW-22S	Total/NA	Water	6020A	544847

Analysis Batch: 545431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total Recoverable	Water	6010C	544843
280-151104-2	MW-22S	Total Recoverable	Water	6010C	544843
280-151104-3	MW-24S	Total Recoverable	Water	6010C	544843
MB 280-544843/1-A	Method Blank	Total Recoverable	Water	6010C	544843
LCS 280-544843/2-A	Lab Control Sample	Total Recoverable	Water	6010C	544843
280-151104-1 MS	MW-21S	Total Recoverable	Water	6010C	544843
280-151104-1 MSD	MW-21S	Total Recoverable	Water	6010C	544843

Prep Batch: 545527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	7470A	
280-151104-2	MW-22S	Total/NA	Water	7470A	
280-151104-3	MW-24S	Total/NA	Water	7470A	
MB 280-545527/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-545527/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-545527/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 545689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	7470A	545527
280-151104-2	MW-22S	Total/NA	Water	7470A	545527

Metals (Continued)

Analysis Batch: 545689 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-3	MW-24S	Total/NA	Water	7470A	545527
MB 280-545527/1-A	Method Blank	Total/NA	Water	7470A	545527
LCS 280-545527/2-A	Lab Control Sample	Total/NA	Water	7470A	545527
LCSD 280-545527/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	545527

Analysis Batch: 545984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total Recoverable	Water	6010C	544843
280-151104-2	MW-22S	Total Recoverable	Water	6010C	544843
280-151104-3	MW-24S	Total Recoverable	Water	6010C	544843
MB 280-544843/1-A	Method Blank	Total Recoverable	Water	6010C	544843
LCS 280-544843/2-A	Lab Control Sample	Total Recoverable	Water	6010C	544843
280-151104-1 MS	MW-21S	Total Recoverable	Water	6010C	544843
280-151104-1 MSD	MW-21S	Total Recoverable	Water	6010C	544843

General Chemistry

Analysis Batch: 544446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	SM 2540C	
280-151104-2	MW-22S	Total/NA	Water	SM 2540C	
280-151104-3	MW-24S	Total/NA	Water	SM 2540C	
MB 280-544446/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-544446/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 545311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-151104-1	MW-21S	Total/NA	Water	9056A	
280-151104-1	MW-21S	Total/NA	Water	9056A	
280-151104-2	MW-22S	Total/NA	Water	9056A	
280-151104-2	MW-22S	Total/NA	Water	9056A	
280-151104-3	MW-24S	Total/NA	Water	9056A	
MB 280-545311/6	Method Blank	Total/NA	Water	9056A	
LCS 280-545311/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-545311/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-545311/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Client Sample ID: MW-21S
Lab Sample ID: 280-151104-1
Date Collected: 07/21/21 09:20
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545984	08/10/21 01:54	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545431	08/04/21 12:08	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	544847	08/02/21 14:35	CEH	TAL DEN
Total/NA	Analysis	6020A		1			545240	08/03/21 08:43	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	545527	08/05/21 16:30	NK	TAL DEN
Total/NA	Analysis	7470A		1			545689	08/05/21 22:28	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	545311	08/04/21 23:36	SPG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	545311	08/04/21 23:50	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	544446	07/27/21 11:39	LRB	TAL DEN

Client Sample ID: MW-22S
Lab Sample ID: 280-151104-2
Date Collected: 07/21/21 10:25
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545984	08/10/21 02:08	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545431	08/04/21 12:24	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	544847	08/02/21 14:35	CEH	TAL DEN
Total/NA	Analysis	6020A		1			545240	08/03/21 08:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	545527	08/05/21 16:30	NK	TAL DEN
Total/NA	Analysis	7470A		1			545689	08/05/21 22:30	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	545311	08/05/21 00:04	SPG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	545311	08/05/21 00:18	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	544446	07/27/21 11:39	LRB	TAL DEN

Client Sample ID: MW-24S
Lab Sample ID: 280-151104-3
Date Collected: 07/21/21 11:20
Matrix: Water
Date Received: 07/23/21 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545984	08/10/21 02:11	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	544843	08/03/21 07:04	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			545431	08/04/21 12:27	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	544847	08/02/21 14:35	CEH	TAL DEN
Total/NA	Analysis	6020A		1			545240	08/03/21 09:05	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	545527	08/05/21 16:30	NK	TAL DEN
Total/NA	Analysis	7470A		1			545689	08/05/21 22:33	NK	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	545311	08/05/21 00:32	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	544446	07/27/21 11:39	LRB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-151104-2
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-22

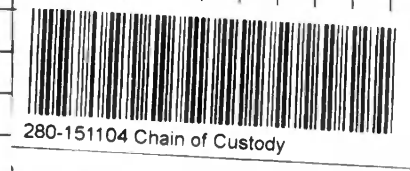
Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page:
Company: Basin Electric Power Cooperative		Analysis Requested		Job #:
Address: 3901 Highway 200A	Due Date Requested:			Preservation Codes:
City: Stanton	TAT Requested (days): Standard			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)
State, Zip: ND, 58571				
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested			Other:
Email: aknutson@bepc.com	WO #:			
Project Name: CCR Groundwater - North Dakota Site	Project #: 28021258			
Site:	SSOW#:			

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)	6010C - Total Calcium and Boron (Appendix III)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9315_Ra226; 9320_Ra228; Combined Radium-226 and Radium-228	6010C - Total B, Ca, Li (1 of 3); 6020A - Total 11 Metals (2 of 3); 7470A - Total Mercury (3 of 3) (Appendix III + IV)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D	D		
MW-21S	7-21-21	0920	G	Water	N		X	X	X	X	X		
MW-22S	7-21-21	1025	G	Water	N		X	X	X	X	X		
MW-24S	7-21-21	1120	G	Water	N		X	X	X	X	X		
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									



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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7-22-21 0730			07/23/21 0720	STAPLN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.0 CF +0.6 IR#12

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 22JUL21
ACTWGT: 53.00 LB
CAD: 251286197/INET4400

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENV
4955 YARROW ST

ARVADA CO 80002

1553037

(303) 736-0100

REF: CCR GROUNDWATER - NU SITE

INV

PO DEPT

FedEx Express

J212021070801uv

FRI - 23 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7743 2740 4723

80002
CO-US DEN

XH LAAA

280-151104 Waybill

FedEx Ship Manager - Print Your Label(s)

7/22/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-151104-2

Login Number: 151104
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins TestAmerica, Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	N/A	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-153679-1
Laboratory Sample Delivery Group: AVS Landfill
Client Project/Site: CCR Groundwater - ND Sites- AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
11/8/2021 9:15:05 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Qualifiers

Rad

Qualifier	Qualifier Description
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: 280-153679-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites- AVS Landfill

Report Number: 280-153679-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

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.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/2/2021 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.6º C.

Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): DUPLICATE (280-153679-4). The container labels list DUP, while the COC lists Duplicate. Sample ID was logged per the COC.

1 x 1 Liter poly unpreserved container for the following sample was received filled with 900mL of volume: MW 21S (280-153679-3). Sufficient volume is available for the requested analysis.

1 x 1 Liter poly unpreserved container for the following sample was received filled with 900mL of volume and 1 x 1 Liter poly Nitric Acid container was received filled with 950mL of volume: DUPLICATE (280-153679-4). Sufficient volume is available for the requested analyses.

RADIUM-226 (GFPC)

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 10/07/2021 and analyzed on 11/03/2021.

Radium-226 was detected in method blank MB 160-530477/23-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The following samples were prepared at a reduced aliquot due to Matrix: MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

Job ID: 280-153679-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-228

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 10/07/2021 and analyzed on 11/01/2021.

The following samples were prepared at a reduced aliquot due to Matrix: MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The detection goal was not met for sample MW 24S (280-153679-1) in batch 160-530482 due to a reduced aliquot, which can be attributed to the presence of matrix interferences. Analytical results are reported with the detection limit achieved.

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 11/05/2021.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Client Sample ID: MW 24S — Lab Sample ID: 280-153679-1

No Detections.

Client Sample ID: MW 22S — Lab Sample ID: 280-153679-2

No Detections.

Client Sample ID: MW 21S — Lab Sample ID: 280-153679-3

No Detections.

Client Sample ID: DUPLICATE — Lab Sample ID: 280-153679-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-153679-1	MW 24S	Water	09/29/21 09:40	10/02/21 09:45
280-153679-2	MW 22S	Water	09/29/21 11:10	10/02/21 09:45
280-153679-3	MW 21S	Water	09/29/21 12:25	10/02/21 09:45
280-153679-4	DUPLICATE	Water	09/29/21 00:00	10/02/21 09:45

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.423	U	0.378	0.380	1.00	0.591	pCi/L	10/07/21 09:55	11/03/21 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.1*		*40 - 110*	*10/07/21 09:55*	*11/03/21 18:10*	*1*

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0846	U	0.285	0.285	1.00	0.523	pCi/L	10/07/21 09:55	11/03/21 18:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.9*		*40 - 110*	*10/07/21 09:55*	*11/03/21 18:15*	*1*

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.217	U	0.181	0.182	1.00	0.271	pCi/L	10/07/21 09:55	11/03/21 18:16	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*10/07/21 09:55*	*11/03/21 18:16*	*1*

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.298**		0.204	0.206	1.00	0.292	pCi/L	10/07/21 09:55	11/03/21 18:16	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*40 - 110*	*10/07/21 09:55*	*11/03/21 18:16*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.00517	U G	0.638	0.638	1.00	1.13	pCi/L	10/07/21 10:33	11/01/21 15:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.1*		*40 - 110*	*10/07/21 10:33*	*11/01/21 15:09*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	84.9		40 - 110	10/07/21 10:33	11/01/21 15:09	1

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.471	U	0.541	0.542	1.00	0.889	pCi/L	10/07/21 10:33	11/01/21 15:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.9		40 - 110	10/07/21 10:33	11/01/21 15:10	1
Y Carrier	82.2		40 - 110	10/07/21 10:33	11/01/21 15:10	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.884		0.421	0.429	1.00	0.619	pCi/L	10/07/21 10:33	11/01/21 15:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110	10/07/21 10:33	11/01/21 15:10	1
Y Carrier	83.7		40 - 110	10/07/21 10:33	11/01/21 15:10	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.372	U	0.353	0.354	1.00	0.570	pCi/L	10/07/21 10:33	11/01/21 15:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.6		40 - 110	10/07/21 10:33	11/01/21 15:11	1
Y Carrier	84.5		40 - 110	10/07/21 10:33	11/01/21 15:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.418	U	0.742	0.743	5.00	1.13	pCi/L		11/05/21 16:04	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.556	U	0.611	0.612	5.00	0.889	pCi/L		11/05/21 16:04	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.10**		0.458	0.466	5.00	0.619	pCi/L		11/05/21 16:04	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.670**		0.408	0.410	5.00	0.570	pCi/L		11/05/21 16:04	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-530477/23-A
Matrix: Water
Analysis Batch: 534851

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 530477

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.3267		0.204	0.206	1.00	0.278	pCi/L	10/07/21 09:55	11/03/21 20:34	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*10/07/21 09:55*	*11/03/21 20:34*	*1*

Lab Sample ID: LCS 160-530477/1-A
Matrix: Water
Analysis Batch: 534853

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530477

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	11.79		1.51	1.00	0.432	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*69.2*		*40 - 110*

Lab Sample ID: LCSD 160-530477/2-A
Matrix: Water
Analysis Batch: 534853

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 530477

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			15.1	11.09		1.34	1.00	0.310	pCi/L	73	75 - 125	0.25	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*94.6*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-530482/23-A
Matrix: Water
Analysis Batch: 534481

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 530482

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4069	U	0.353	0.355	1.00	0.564	pCi/L	10/07/21 10:33	11/01/21 15:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*10/07/21 10:33*	*11/01/21 15:14*	*1*
Y Carrier	*85.6*		*40 - 110*	*10/07/21 10:33*	*11/01/21 15:14*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-530482/1-A
Matrix: Water
Analysis Batch: 534585

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530482

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.2	13.75		1.71	1.00	0.728	pCi/L	112	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*69.2*		*40 - 110*
Y Carrier	*82.6*		*40 - 110*

Lab Sample ID: LCSD 160-530482/2-A
Matrix: Water
Analysis Batch: 534585

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 530482

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			12.2	12.78		1.50	1.00	0.537	pCi/L	104	75 - 125	0.30	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*94.6*		*40 - 110*
Y Carrier	*83.7*		*40 - 110*

Rad

Prep Batch: 530477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	PrecSep-21	
280-153679-2	MW 22S	Total/NA	Water	PrecSep-21	
280-153679-3	MW 21S	Total/NA	Water	PrecSep-21	
280-153679-4	DUPLICATE	Total/NA	Water	PrecSep-21	
MB 160-530477/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-530477/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-530477/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 530482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	PrecSep_0	
280-153679-2	MW 22S	Total/NA	Water	PrecSep_0	
280-153679-3	MW 21S	Total/NA	Water	PrecSep_0	
280-153679-4	DUPLICATE	Total/NA	Water	PrecSep_0	
MB 160-530482/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-530482/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-530482/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.77 mL	1.0 g	530477	10/07/21 09:55	BMP	TAL SL
Total/NA	Analysis	9315		1			534853	11/03/21 18:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.77 mL	1.0 g	530482	10/07/21 10:33	BMP	TAL SL
Total/NA	Analysis	9320		1			534481	11/01/21 15:09	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			535296	11/05/21 16:04	MLK	TAL SL

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.04 mL	1.0 g	530477	10/07/21 09:55	BMP	TAL SL
Total/NA	Analysis	9315		1			534851	11/03/21 18:15	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.04 mL	1.0 g	530482	10/07/21 10:33	BMP	TAL SL
Total/NA	Analysis	9320		1			534481	11/01/21 15:10	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			535296	11/05/21 16:04	MLK	TAL SL

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.26 mL	1.0 g	530477	10/07/21 09:55	BMP	TAL SL
Total/NA	Analysis	9315		1			534851	11/03/21 18:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.26 mL	1.0 g	530482	10/07/21 10:33	BMP	TAL SL
Total/NA	Analysis	9320		1			534481	11/01/21 15:10	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			535296	11/05/21 16:04	MLK	TAL SL

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.64 mL	1.0 g	530477	10/07/21 09:55	BMP	TAL SL
Total/NA	Analysis	9315		1			534851	11/03/21 18:16	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.64 mL	1.0 g	530482	10/07/21 10:33	BMP	TAL SL
Total/NA	Analysis	9320		1			534481	11/01/21 15:11	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			535296	11/05/21 16:04	MLK	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-153679-1
Project/Site: CCR Groundwater - ND Sites- AVS Landfill
SDG: AVS Landfill

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	06-30-22
California	State	2886	06-30-21 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21 *
Kentucky (DW)	State	KY90125	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:
Address: 3901 Highway 200A	Due Date Requested:			
City: Stanton	TAT Requested (days): Standard			
State, Zip: ND, 58571				
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested			
Email: aknutson@bepc.com	WO #:			
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258			
Site: AVS LANDFILL	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	6010C - Total Lithium (1 of 3); 6020A - Total 11 Metals (2 of 3); 7470A - Total Mercury (3 of 3) (Appendix IV)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9056A_28D - Fluoride only (App IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	N	D		
MW 24 S	9-29-21	0940	G	W	N		X	X	X	X	X	X		pH - 8.03
MW 22 S	9-29-21	1110	G	W	N		X	X	X	X	X	X		- 7.97
MW 21 S	9-29-21	1225	G	W	N		X	X	X	X	X	X		7.90
Duplicate	9-29-21		G	W	N		X	X	X	X	X	X		

280-153679 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
1		10-1-21			10/2/21 0945	ETADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No | Custody Seal No.: 1543672, 1543763

Cooler Temperature(s) °C and Other Remarks: 0.6 IR11 CF+1.0

Ver: 01/16/2019

280-153679 Waybill

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 01OCT21
ACTWGT: 60.00 LB
CAD: 251286197/INET4400

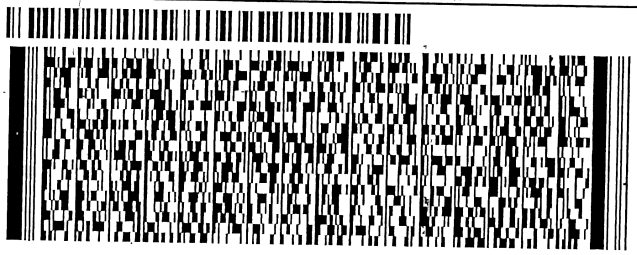
BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV:
PO:

REF: CCR GROUNDWATER - ND SITE
DEPT:

56DJ3/169A/FE4A



FedEx Express

J212021070901uv

FedEx Ship Manager - Print Your Label(s)

SATURDAY 9:30A
FIRST OVERNIGHT

TRK# 0201 7748 5611 0180

X0 LAAA

80002
CO-US DEN

eurofins | Environment Testing TestAmerica

1543673

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1543672

10/1/21, 7:39 AM

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-587549.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@Eurofinset.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-153679-1
Address: 13715 Rider Trail North,	Due Date Requested: 11/2/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR Groundwater - ND Sites- LOS Ponds	Project #: 28021258			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - 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)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW 24S (280-153679-1)	9/29/21	09:40 Central		Water			X	X	X	2	
MW 22S (280-153679-2)	9/29/21	11:10 Central		Water			X	X	X	2	
MW 21S (280-153679-3)	9/29/21	12:25 Central		Water			X	X	X	2	
DUPLICATE (280-153679-4)	9/29/21	Central		Water			X	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
1	[signature]	10-4-21 1336	ETA DEN	FED EX		
2	FED EX			Mona Kowalczyk	OCT 06 2021 09:10	ETA 92
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-153679-1
SDG Number: AVS Landfill

Login Number: 153679
List Number: 1
Creator: O'Hara, Jake F

List Source: Eurofins TestAmerica, Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	False	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-153679-1
SDG Number: AVS Landfill

Login Number: 153679
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/06/21 01:40 PM

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	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-1
SDG: AVS Landfill

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-153679-1	MW 24S	82.1
280-153679-2	MW 22S	81.9
280-153679-3	MW 21S	89.4
280-153679-4	DUPLICATE	88.6
LCS 160-530477/1-A	Lab Control Sample	69.2
LCSD 160-530477/2-A	Lab Control Sample Dup	94.6
MB 160-530477/23-A	Method Blank	85.0

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-153679-1	MW 24S	82.1	84.9
280-153679-2	MW 22S	81.9	82.2
280-153679-3	MW 21S	89.4	83.7
280-153679-4	DUPLICATE	88.6	84.5
LCS 160-530482/1-A	Lab Control Sample	69.2	82.6
LCSD 160-530482/2-A	Lab Control Sample Dup	94.6	83.7
MB 160-530482/23-A	Method Blank	85.0	85.6

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-153679-2
Laboratory Sample Delivery Group: AVS Landfill
Client Project/Site: CCR Groundwater - ND Sites- AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
10/13/2021 1:29:22 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

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: 280-153679-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites- AVS Landfill

Report Number: 280-153679-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/2/2021 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.6º C.

Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): DUPLICATE (280-153679-4). The container labels list DUP, while the COC lists Duplicate. Sample ID was logged per the COC.

1 x 1 Liter poly unpreserved container for the following sample was received filled with 900mL of volume: MW 21S (280-153679-3). Sufficient volume is available for the requested analysis.

1 x 1 Liter poly unpreserved container for the following sample was received filled with 900mL of volume and 1 x 1 Liter poly Nitric Acid container was received filled with 950mL of volume: DUPLICATE (280-153679-4). Sufficient volume is available for the requested analyses.

TOTAL RECOVERABLE METALS

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/05/2021 and analyzed on 10/06/2021.

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

TOTAL METALS (ICPMS)

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared on 10/04/2021 and analyzed on 10/12/2021.

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

TOTAL MERCURY

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/08/2021.

Job ID: 280-153679-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

TOTAL DISSOLVED SOLIDS

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 10/03/2021 and 10/06/2021.

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

ANIONS (28 DAYS)

Samples MW 24S (280-153679-1), MW 22S (280-153679-2), MW 21S (280-153679-3) and DUPLICATE (280-153679-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 10/06/2021.

Samples MW 22S (280-153679-2)[5X], MW 21S (280-153679-3)[5X] and DUPLICATE (280-153679-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Client Sample ID: MW 24S — Lab Sample ID: 280-153679-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	134		100		ug/L	1		6010C	Total Recoverable
Calcium	5080		200		ug/L	1		6010C	Total Recoverable
Lithium	87.8		20.0		ug/L	1		6010C	Total Recoverable
Barium	71.2		1.00		ug/L	1		6020A	Total/NA
Cobalt	1.28		1.00		ug/L	1		6020A	Total/NA
Molybdenum	10.3		2.00		ug/L	1		6020A	Total/NA
Chloride	49.5		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.33		0.500		mg/L	1		9056A	Total/NA
Sulfate	45.3		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1610		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW 22S — Lab Sample ID: 280-153679-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	152		100		ug/L	1		6010C	Total Recoverable
Calcium	6470		200		ug/L	1		6010C	Total Recoverable
Lithium	40.2		20.0		ug/L	1		6010C	Total Recoverable
Barium	53.2		1.00		ug/L	1		6020A	Total/NA
Chloride	10.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.61		0.500		mg/L	1		9056A	Total/NA
Sulfate	260		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1610		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW 21S — Lab Sample ID: 280-153679-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	151		100		ug/L	1		6010C	Total Recoverable
Calcium	6270		200		ug/L	1		6010C	Total Recoverable
Lithium	41.1		20.0		ug/L	1		6010C	Total Recoverable
Barium	52.3		1.00		ug/L	1		6020A	Total/NA
Molybdenum	5.27		2.00		ug/L	1		6020A	Total/NA
Chloride	16.6		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.34		0.500		mg/L	1		9056A	Total/NA
Sulfate	719		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2160		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUPLICATE — Lab Sample ID: 280-153679-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	154		100		ug/L	1		6010C	Total Recoverable
Calcium	2670		200		ug/L	1		6010C	Total Recoverable
Lithium	51.5		20.0		ug/L	1		6010C	Total Recoverable
Barium	50.5		1.00		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUPLICATE (Continued)

Lab Sample ID: 280-153679-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	5.67		2.00		ug/L	1		6020A	Total/NA
Chloride	16.9		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.32		0.500		mg/L	1		9056A	Total/NA
Sulfate	769		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2690		40.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-153679-1	MW 24S	Water	09/29/21 09:40	10/02/21 09:45
280-153679-2	MW 22S	Water	09/29/21 11:10	10/02/21 09:45
280-153679-3	MW 21S	Water	09/29/21 12:25	10/02/21 09:45
280-153679-4	DUPLICATE	Water	09/29/21 00:00	10/02/21 09:45

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**134**		100		ug/L		10/05/21 08:15	10/06/21 01:58	1
Calcium	**5080**		200		ug/L		10/05/21 08:15	10/06/21 01:58	1
Lithium	**87.8**		20.0		ug/L		10/05/21 08:15	10/06/21 01:58	1

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**152**		100		ug/L		10/05/21 08:15	10/06/21 02:01	1
Calcium	**6470**		200		ug/L		10/05/21 08:15	10/06/21 02:01	1
Lithium	**40.2**		20.0		ug/L		10/05/21 08:15	10/06/21 02:01	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**151**		100		ug/L		10/05/21 08:15	10/06/21 02:04	1
Calcium	**6270**		200		ug/L		10/05/21 08:15	10/06/21 02:04	1
Lithium	**41.1**		20.0		ug/L		10/05/21 08:15	10/06/21 02:04	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**154**		100		ug/L		10/05/21 08:15	10/06/21 02:08	1
Calcium	**2670**		200		ug/L		10/05/21 08:15	10/06/21 02:08	1
Lithium	**51.5**		20.0		ug/L		10/05/21 08:15	10/06/21 02:08	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Arsenic	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Barium	**71.2**		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Beryllium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Cadmium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Chromium	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Cobalt	**1.28**		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Lead	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Molybdenum	**10.3**		2.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Selenium	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:21	1
Thallium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:21	1

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:25	1

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

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Barium	**53.2**		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Beryllium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Cadmium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Chromium	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Cobalt	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Lead	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Molybdenum	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Selenium	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:25	1
Thallium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:25	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Arsenic	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Barium	**52.3**		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Beryllium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Cadmium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Chromium	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Cobalt	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Lead	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Molybdenum	**5.27**		2.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Selenium	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:47	1
Thallium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:47	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Arsenic	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Barium	**50.5**		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Beryllium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Cadmium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Chromium	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Cobalt	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Lead	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Molybdenum	**5.67**		2.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Selenium	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:51	1
Thallium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:51	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		10/08/21 12:45	10/08/21 17:45	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		10/08/21 12:45	10/08/21 17:48	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		10/08/21 12:45	10/08/21 17:50	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		10/08/21 12:45	10/08/21 17:53	1

General Chemistry

Client Sample ID: MW 24S
Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.5		3.00		mg/L			10/06/21 03:11	1
Fluoride	1.33		0.500		mg/L			10/06/21 03:11	1
Sulfate	45.3		5.00		mg/L			10/06/21 03:11	1
Total Dissolved Solids (TDS)	1610		20.0		mg/L			10/06/21 08:31	1

Client Sample ID: MW 22S
Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.1		3.00		mg/L			10/06/21 03:39	1
Fluoride	1.61		0.500		mg/L			10/06/21 03:39	1
Sulfate	260		25.0		mg/L			10/06/21 03:53	5
Total Dissolved Solids (TDS)	1610		20.0		mg/L			10/06/21 08:31	1

Client Sample ID: MW 21S
Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.6		3.00		mg/L			10/06/21 04:07	1
Fluoride	1.34		0.500		mg/L			10/06/21 04:07	1
Sulfate	719		25.0		mg/L			10/06/21 04:21	5
Total Dissolved Solids (TDS)	2160		40.0		mg/L			10/06/21 08:31	1

Client Sample ID: DUPLICATE
Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.9		3.00		mg/L			10/06/21 04:36	1
Fluoride	1.32		0.500		mg/L			10/06/21 04:36	1
Sulfate	769		25.0		mg/L			10/06/21 04:50	5
Total Dissolved Solids (TDS)	2690		40.0		mg/L			10/03/21 11:08	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-552184/1-A
Matrix: Water
Analysis Batch: 552489

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 552184

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		10/05/21 08:15	10/06/21 01:37	1
Calcium	ND		200		ug/L		10/05/21 08:15	10/06/21 01:37	1
Lithium	ND		20.0		ug/L		10/05/21 08:15	10/06/21 01:37	1

Lab Sample ID: LCS 280-552184/2-A
Matrix: Water
Analysis Batch: 552489

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 552184

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	1014		ug/L		101	86 - 110
Calcium	50000	50600		ug/L		101	90 - 111
Lithium	1000	1003		ug/L		100	90 - 112

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-552110/1-A
Matrix: Water
Analysis Batch: 553225

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Arsenic	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Barium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Beryllium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Cadmium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Chromium	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Cobalt	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Lead	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Molybdenum	ND		2.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Selenium	ND		5.00		ug/L		10/04/21 14:32	10/12/21 09:13	1
Thallium	ND		1.00		ug/L		10/04/21 14:32	10/12/21 09:13	1

Lab Sample ID: LCS 280-552110/2-A
Matrix: Water
Analysis Batch: 553225

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	36.01		ug/L		90	85 - 115
Arsenic	40.0	40.06		ug/L		100	85 - 117
Barium	40.0	38.88		ug/L		97	85 - 118
Beryllium	40.0	38.78		ug/L		97	80 - 125
Cadmium	40.0	40.60		ug/L		101	85 - 115
Chromium	40.0	43.25		ug/L		108	84 - 121
Cobalt	40.0	39.80		ug/L		100	85 - 120
Lead	40.0	40.56		ug/L		101	85 - 118
Molybdenum	40.0	40.62		ug/L		102	85 - 119
Selenium	40.0	39.93		ug/L		100	77 - 122
Thallium	40.0	39.80		ug/L		100	85 - 118

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

Lab Sample ID: 280-153679-2 MS
Matrix: Water
Analysis Batch: 553225

Client Sample ID: MW 22S
Prep Type: Total/NA
Prep Batch: 552110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		40.0	38.58		ug/L		96	85 - 115
Arsenic	ND		40.0	40.29		ug/L		101	85 - 117
Barium	53.2		40.0	99.00		ug/L		114	85 - 118
Beryllium	ND		40.0	42.25		ug/L		105	80 - 125
Cadmium	ND		40.0	40.34		ug/L		101	85 - 115
Chromium	ND		40.0	40.81		ug/L		100	84 - 121
Cobalt	ND		40.0	39.20		ug/L		97	85 - 120
Lead	ND		40.0	38.04		ug/L		95	85 - 118
Molybdenum	ND		40.0	41.53		ug/L		102	85 - 119
Selenium	ND		40.0	38.50		ug/L		96	77 - 122
Thallium	ND		40.0	37.38		ug/L		93	85 - 118

Lab Sample ID: 280-153679-2 MSD
Matrix: Water
Analysis Batch: 553225

Client Sample ID: MW 22S
Prep Type: Total/NA
Prep Batch: 552110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		40.0	39.58		ug/L		99	85 - 115	3	20
Arsenic	ND		40.0	39.83		ug/L		100	85 - 117	1	20
Barium	53.2		40.0	95.51		ug/L		106	85 - 118	4	20
Beryllium	ND		40.0	44.07		ug/L		110	80 - 125	4	20
Cadmium	ND		40.0	39.54		ug/L		99	85 - 115	2	20
Chromium	ND		40.0	42.59		ug/L		105	84 - 121	4	20
Cobalt	ND		40.0	38.33		ug/L		95	85 - 120	2	20
Lead	ND		40.0	38.75		ug/L		97	85 - 118	2	20
Molybdenum	ND		40.0	42.31		ug/L		104	85 - 119	2	20
Selenium	ND		40.0	40.44		ug/L		101	77 - 122	5	20
Thallium	ND		40.0	37.66		ug/L		94	85 - 118	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-552583/1-A
Matrix: Water
Analysis Batch: 552938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		10/08/21 12:45	10/08/21 16:52	1

Lab Sample ID: LCS 280-552583/2-A
Matrix: Water
Analysis Batch: 552938

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.004970		mg/L		99	84 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 280-552583/3-A
Matrix: Water
Analysis Batch: 552938

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552583

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.00500	0.004480		mg/L		90	84 - 120	10	15

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-552193/46
Matrix: Water
Analysis Batch: 552193

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			10/05/21 21:49	1
Fluoride	ND		0.500		mg/L			10/05/21 21:49	1
Sulfate	ND		5.00		mg/L			10/05/21 21:49	1

Lab Sample ID: MB 280-552193/6
Matrix: Water
Analysis Batch: 552193

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			10/04/21 16:13	1
Fluoride	ND		0.500		mg/L			10/04/21 16:13	1
Sulfate	ND		5.00		mg/L			10/04/21 16:13	1

Lab Sample ID: LCS 280-552193/44
Matrix: Water
Analysis Batch: 552193

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	97.45		mg/L		97	90 - 110		
Fluoride			5.00	5.019		mg/L		100	90 - 110		
Sulfate			100	97.72		mg/L		98	90 - 110		

Lab Sample ID: LCSD 280-552193/45
Matrix: Water
Analysis Batch: 552193

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	97.37		mg/L		97	90 - 110	0	10
Fluoride			5.00	5.142		mg/L		103	90 - 110	2	10
Sulfate			100	97.54		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-552193/3
Matrix: Water
Analysis Batch: 552193

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	5.041		mg/L		101	50 - 150		
Fluoride			0.500	0.5541		mg/L		111	50 - 150		
Sulfate			5.00	ND		mg/L		98	50 - 150		

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

Lab Sample ID: MB 280-552081/1
Matrix: Water
Analysis Batch: 552081

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 (TDS)	ND		10.0		mg/L			10/03/21 11:08	1

Lab Sample ID: LCS 280-552081/2
Matrix: Water
Analysis Batch: 552081

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 (TDS)			503	500.0		mg/L		99	88 - 114		

Lab Sample ID: 280-153679-4 DU
Matrix: Water
Analysis Batch: 552081

Client Sample ID: DUPLICATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	2690			2812		mg/L				4	10

Lab Sample ID: MB 280-552469/1
Matrix: Water
Analysis Batch: 552469

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 (TDS)	ND		10.0		mg/L			10/06/21 08:31	1

Lab Sample ID: LCS 280-552469/2
Matrix: Water
Analysis Batch: 552469

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 (TDS)			503	482.0		mg/L		96	88 - 114		

Metals

Prep Batch: 552110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	3020A	
280-153679-2	MW 22S	Total/NA	Water	3020A	
280-153679-3	MW 21S	Total/NA	Water	3020A	
280-153679-4	DUPLICATE	Total/NA	Water	3020A	
MB 280-552110/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-552110/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-153679-2 MS	MW 22S	Total/NA	Water	3020A	
280-153679-2 MSD	MW 22S	Total/NA	Water	3020A	

Prep Batch: 552184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total Recoverable	Water	3005A	
280-153679-2	MW 22S	Total Recoverable	Water	3005A	
280-153679-3	MW 21S	Total Recoverable	Water	3005A	
280-153679-4	DUPLICATE	Total Recoverable	Water	3005A	
MB 280-552184/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-552184/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 552489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total Recoverable	Water	6010C	552184
280-153679-2	MW 22S	Total Recoverable	Water	6010C	552184
280-153679-3	MW 21S	Total Recoverable	Water	6010C	552184
280-153679-4	DUPLICATE	Total Recoverable	Water	6010C	552184
MB 280-552184/1-A	Method Blank	Total Recoverable	Water	6010C	552184
LCS 280-552184/2-A	Lab Control Sample	Total Recoverable	Water	6010C	552184

Prep Batch: 552583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	7470A	
280-153679-2	MW 22S	Total/NA	Water	7470A	
280-153679-3	MW 21S	Total/NA	Water	7470A	
280-153679-4	DUPLICATE	Total/NA	Water	7470A	
MB 280-552583/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-552583/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-552583/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 552938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	7470A	552583
280-153679-2	MW 22S	Total/NA	Water	7470A	552583
280-153679-3	MW 21S	Total/NA	Water	7470A	552583
280-153679-4	DUPLICATE	Total/NA	Water	7470A	552583
MB 280-552583/1-A	Method Blank	Total/NA	Water	7470A	552583
LCS 280-552583/2-A	Lab Control Sample	Total/NA	Water	7470A	552583
LCSD 280-552583/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	552583

Analysis Batch: 553225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	6020A	552110
280-153679-2	MW 22S	Total/NA	Water	6020A	552110

Metals (Continued)

Analysis Batch: 553225 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-3	MW 21S	Total/NA	Water	6020A	552110
280-153679-4	DUPLICATE	Total/NA	Water	6020A	552110
MB 280-552110/1-A	Method Blank	Total/NA	Water	6020A	552110
LCS 280-552110/2-A	Lab Control Sample	Total/NA	Water	6020A	552110
280-153679-2 MS	MW 22S	Total/NA	Water	6020A	552110
280-153679-2 MSD	MW 22S	Total/NA	Water	6020A	552110

General Chemistry

Analysis Batch: 552081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-4	DUPLICATE	Total/NA	Water	SM 2540C	
MB 280-552081/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-552081/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-153679-4 DU	DUPLICATE	Total/NA	Water	SM 2540C	

Analysis Batch: 552193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	9056A	
280-153679-2	MW 22S	Total/NA	Water	9056A	
280-153679-2	MW 22S	Total/NA	Water	9056A	
280-153679-3	MW 21S	Total/NA	Water	9056A	
280-153679-3	MW 21S	Total/NA	Water	9056A	
280-153679-4	DUPLICATE	Total/NA	Water	9056A	
280-153679-4	DUPLICATE	Total/NA	Water	9056A	
MB 280-552193/46	Method Blank	Total/NA	Water	9056A	
MB 280-552193/6	Method Blank	Total/NA	Water	9056A	
LCS 280-552193/44	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-552193/45	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-552193/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 552469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-153679-1	MW 24S	Total/NA	Water	SM 2540C	
280-153679-2	MW 22S	Total/NA	Water	SM 2540C	
280-153679-3	MW 21S	Total/NA	Water	SM 2540C	
MB 280-552469/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-552469/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Client Sample ID: MW 24S

Date Collected: 09/29/21 09:40
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	552184	10/05/21 08:15	ABW	TAL DEN
Total Recoverable	Analysis	6010C		1			552489	10/06/21 01:58	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	552110	10/04/21 14:32	CJB	TAL DEN
Total/NA	Analysis	6020A		1			553225	10/12/21 09:21	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	552583	10/08/21 12:45	NK	TAL DEN
Total/NA	Analysis	7470A		1			552938	10/08/21 17:45	NK	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	552193	10/06/21 03:11	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	552469	10/06/21 08:31	LRB	TAL DEN

Client Sample ID: MW 22S

Date Collected: 09/29/21 11:10
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	552184	10/05/21 08:15	ABW	TAL DEN
Total Recoverable	Analysis	6010C		1			552489	10/06/21 02:01	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	552110	10/04/21 14:32	CJB	TAL DEN
Total/NA	Analysis	6020A		1			553225	10/12/21 09:25	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	552583	10/08/21 12:45	NK	TAL DEN
Total/NA	Analysis	7470A		1			552938	10/08/21 17:48	NK	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	552193	10/06/21 03:39	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	552193	10/06/21 03:53	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	552469	10/06/21 08:31	LRB	TAL DEN

Client Sample ID: MW 21S

Date Collected: 09/29/21 12:25
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	552184	10/05/21 08:15	ABW	TAL DEN
Total Recoverable	Analysis	6010C		1			552489	10/06/21 02:04	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	552110	10/04/21 14:32	CJB	TAL DEN
Total/NA	Analysis	6020A		1			553225	10/12/21 09:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	552583	10/08/21 12:45	NK	TAL DEN
Total/NA	Analysis	7470A		1			552938	10/08/21 17:50	NK	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	552193	10/06/21 04:07	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	552193	10/06/21 04:21	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	552469	10/06/21 08:31	LRB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Client Sample ID: DUPLICATE

Date Collected: 09/29/21 00:00
Date Received: 10/02/21 09:45

Lab Sample ID: 280-153679-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	552184	10/05/21 08:15	ABW	TAL DEN
Total Recoverable	Analysis	6010C		1			552489	10/06/21 02:08	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	552110	10/04/21 14:32	CJB	TAL DEN
Total/NA	Analysis	6020A		1			553225	10/12/21 09:51	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	552583	10/08/21 12:45	NK	TAL DEN
Total/NA	Analysis	7470A		1			552938	10/08/21 17:53	NK	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	552193	10/06/21 04:36	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	552193	10/06/21 04:50	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	552081	10/03/21 11:08	LRB	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- AVS Landfill

Job ID: 280-153679-2
SDG: AVS Landfill

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:

Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested
City: Stanton	TAT Requested (days): Standard	
State, Zip: ND, 58571		
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested	
Email: aknutson@bepc.com	WO #:	
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258	
Site: AVS LANDFILL	SSOW#:	

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	6010C - Total Lithium (1 of 3); 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9056A_28D - Fluoride only (App IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	N	D		
MW 24 S	9-29-21	0940	G	W	N		X	X	X	X	X	X		pH - 8.03
MW 22 S	9-29-21	1110	G	W	N		X	X	X	X	X	X		- 7.97
MW 21 S	9-29-21	1225	G	W	N		X	X	X	X	X	X		7.90
Duplicate	9-29-21		G	W	N		X	X	X	X	X	X		

280-153679 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological	☐ 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
	10-1-21			10/2/21 0945	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes △ No	Custody Seal No.: 1543672, 1543763	Cooler Temperature(s) °C and Other Remarks: 0.6 IR11 CF+1.0

Ver: 01/16/2019

280-153679 Waybill

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 01OCT21
ACTWGT: 60.00 LB
CAD: 251286197/INET4400

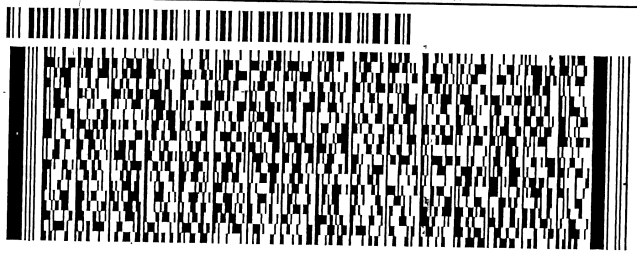
BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV:
PO:

REF: CCR GROUNDWATER - ND SITE
DEPT:

56DJ3/169A/FE4A



FedEx Express

J212021070901uv

FedEx Ship Manager - Print Your Label(s)

SATURDAY 9:30A
FIRST OVERNIGHT

TRK# 0201 7748 5611 0180

X0 LAAA

80002
CO-US DEN

eurofins | Environment Testing TestAmerica

1543673

eurofins | Environment Testing TestAmerica

1543672

10/1/21, 7:39 AM

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-153679-2
SDG Number: AVS Landfill

Login Number: 153679
List Number: 1
Creator: O'Hara, Jake F

List Source: Eurofins TestAmerica, Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	False	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-160139-1
Laboratory Sample Delivery Group: AVS Landfill
Client Project/Site: CCR Groundwater - North Dakota Sites - AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
4/22/2022 3:27:44 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Qualifiers

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
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: 280-160139-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - North Dakota Sites -AVS Landfill

Report Number: 280-160139-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

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.

RECEIPT
The samples were received on 3/24/2022 11:05 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3º C.

RADIUM-226 (GFPC)
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 03/29/2022 and analyzed on 04/20/2022.

The following samples were prepared at a reduced aliquot due to matrix: MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4). A laboratory control sample (LCS) / laboratory control sample duplicate (LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

RADIUM-228
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 03/29/2022 and analyzed on 04/19/2022.

The following samples were prepared at a reduced aliquot due to matrix: MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4). A laboratory control sample (LCS) / laboratory control sample duplicate (LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

RADIUM-226/RADIUM-228 (GFPC)
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 04/22/2022.

Job ID: 280-160139-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Client Sample ID: MW-22S — Lab Sample ID: 280-160139-1

No Detections.

Client Sample ID: MW-24S — Lab Sample ID: 280-160139-2

No Detections.

Client Sample ID: MW-21S — Lab Sample ID: 280-160139-3

No Detections.

Client Sample ID: DUP — Lab Sample ID: 280-160139-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160139-1	MW-22S	Water	03/22/22 10:05	03/24/22 11:05
280-160139-2	MW-24S	Water	03/22/22 11:05	03/24/22 11:05
280-160139-3	MW-21S	Water	03/22/22 12:50	03/24/22 11:05
280-160139-4	DUP	Water	03/22/22 12:50	03/24/22 11:05

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.117	U	0.293	0.293	1.00	0.621	pCi/L	03/29/22 13:42	04/20/22 14:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/29/22 13:42*	*04/20/22 14:25*	*1*

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.352	U	0.298	0.300	1.00	0.450	pCi/L	03/29/22 13:42	04/20/22 14:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*03/29/22 13:42*	*04/20/22 14:25*	*1*

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0548	U	0.205	0.205	1.00	0.425	pCi/L	03/29/22 13:42	04/20/22 14:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.7*		*40 - 110*	*03/29/22 13:42*	*04/20/22 14:26*	*1*

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.116	U	0.205	0.205	1.00	0.360	pCi/L	03/29/22 13:42	04/20/22 14:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.1*		*40 - 110*	*03/29/22 13:42*	*04/20/22 14:27*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.233	U	0.375	0.375	1.00	0.719	pCi/L	03/29/22 14:17	04/19/22 12:32	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	03/29/22 14:17	04/19/22 12:32	1
Y Carrier	82.2		40 - 110	03/29/22 14:17	04/19/22 12:32	1

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.397	U	0.419	0.420	1.00	0.684	pCi/L	03/29/22 14:17	04/19/22 12:32	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110	03/29/22 14:17	04/19/22 12:32	1
Y Carrier	82.6		40 - 110	03/29/22 14:17	04/19/22 12:32	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.684**		0.408	0.413	1.00	0.622	pCi/L	03/29/22 14:17	04/19/22 12:32	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.7		40 - 110	03/29/22 14:17	04/19/22 12:32	1
Y Carrier	83.4		40 - 110	03/29/22 14:17	04/19/22 12:32	1

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.865**		0.354	0.363	1.00	0.493	pCi/L	03/29/22 14:17	04/19/22 12:32	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110	03/29/22 14:17	04/19/22 12:32	1
Y Carrier	87.1		40 - 110	03/29/22 14:17	04/19/22 12:32	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.351	U	0.476	0.476	5.00	0.719	pCi/L		04/22/22 15:09	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.749		0.514	0.516	5.00	0.684	pCi/L		04/22/22 15:09	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.629		0.457	0.461	5.00	0.622	pCi/L		04/22/22 15:09	1

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.980		0.409	0.417	5.00	0.493	pCi/L		04/22/22 15:09	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-557767/19-A
Matrix: Water
Analysis Batch: 561497

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 557767

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.004979	U	0.0906	0.0906	1.00	0.189	pCi/L	03/29/22 13:42	04/21/22 14:26	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110	03/29/22 13:42	04/21/22 14:26	1

Lab Sample ID: LCS 160-557767/1-A
Matrix: Water
Analysis Batch: 561270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 557767

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.35		1.26	1.00	0.282	pCi/L	91	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.9		40 - 110

Lab Sample ID: LCSD 160-557767/2-A
Matrix: Water
Analysis Batch: 561270

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 557767

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	10.17		1.23	1.00	0.227	pCi/L	90	75 - 125	0.07	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	95.8		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-557769/19-A
Matrix: Water
Analysis Batch: 561238

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 557769

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1612	U	0.241	0.242	1.00	0.404	pCi/L	03/29/22 14:17	04/19/22 12:35	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110	03/29/22 14:17	04/19/22 12:35	1
Y Carrier	85.6		40 - 110	03/29/22 14:17	04/19/22 12:35	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-557769/1-A
Matrix: Water
Analysis Batch: 561237

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 557769

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.69	9.942		1.16	1.00	0.415	pCi/L	114	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.9*		*40 - 110*
Y Carrier	*82.2*		*40 - 110*

Lab Sample ID: LCSD 160-557769/2-A
Matrix: Water
Analysis Batch: 561237

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 557769

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.69	9.223		1.09	1.00	0.426	pCi/L	106	75 - 125	0.32	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*95.8*		*40 - 110*
Y Carrier	*83.4*		*40 - 110*

QC Association Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Rad

Prep Batch: 557767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	PrecSep-21	
280-160139-2	MW-24S	Total/NA	Water	PrecSep-21	
280-160139-3	MW-21S	Total/NA	Water	PrecSep-21	
280-160139-4	DUP	Total/NA	Water	PrecSep-21	
MB 160-557767/19-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-557767/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-557767/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 557769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	PrecSep_0	
280-160139-2	MW-24S	Total/NA	Water	PrecSep_0	
280-160139-3	MW-21S	Total/NA	Water	PrecSep_0	
280-160139-4	DUP	Total/NA	Water	PrecSep_0	
MB 160-557769/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-557769/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-557769/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.281000 mL	1.0 g	557767	03/29/22 13:42	LPS	TAL SL
Total/NA	Analysis	9315		1			561270	04/20/22 14:25	FLC	TAL SL
Total/NA	Prep	PrecSep_0			503.281000 mL	1.0 g	557769	03/29/22 14:17	LPS	TAL SL
Total/NA	Analysis	9320		1			561237	04/19/22 12:32	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			561610	04/22/22 15:09	SCB	TAL SL

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.64 mL	1.0 g	557767	03/29/22 13:42	LPS	TAL SL
Total/NA	Analysis	9315		1			561270	04/20/22 14:25	FLC	TAL SL
Total/NA	Prep	PrecSep_0			503.64 mL	1.0 g	557769	03/29/22 14:17	LPS	TAL SL
Total/NA	Analysis	9320		1			561237	04/19/22 12:32	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			561610	04/22/22 15:09	SCB	TAL SL

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			745.88 mL	1.0 g	557767	03/29/22 13:42	LPS	TAL SL
Total/NA	Analysis	9315		1			561271	04/20/22 14:26	FLC	TAL SL
Total/NA	Prep	PrecSep_0			745.88 mL	1.0 g	557769	03/29/22 14:17	LPS	TAL SL
Total/NA	Analysis	9320		1			561237	04/19/22 12:32	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			561610	04/22/22 15:09	SCB	TAL SL

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.11 mL	1.0 g	557767	03/29/22 13:42	LPS	TAL SL
Total/NA	Analysis	9315		1			561271	04/20/22 14:27	FLC	TAL SL
Total/NA	Prep	PrecSep_0			753.11 mL	1.0 g	557769	03/29/22 14:17	LPS	TAL SL
Total/NA	Analysis	9320		1			561237	04/19/22 12:32	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			561610	04/22/22 15:09	SCB	TAL SL

Laboratory References:
TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Laboratory: Eurofins 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	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: AARON Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1
Company: Basin Electric Power Cooperative				Job #:
Address: 3901 Highway 200A	Due Date Requested:			
City: Stanton	TAT Requested (days): Standard			
State, Zip: ND, 58571	PO #: Purchase Order Requested			
Phone: 701-745-7238(Tel)	WO #:			
Email: aknutson@bepc.com				
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258			
Site: AVS LANDFILL	SSOW#:			

Analysis Requested

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)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-22S	3-22-22	1005	G	W			X	X	X	X	X		pH - 8.27
MW-24S	3-22-22	1120	G	W			↓	↓	↓	↓	↓		pH - 8.23
MW-21S	3-22-22	1250	G	W			↓	↓	↓	↓	↓		pH - 8.13
DUP	3-22-22	1250	G	W			↓	↓	↓	↓	↓		pH - 8.13

280-160139 Chain of Custody

Preservation Codes:

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

Other:

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]	3-23-22 0700	BEPC	[signature]	3/24/22 1105	ETADEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 0.5 CF -0.2 IR 13

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 23MAR22
ACTWGT: 65.00 LB
CAD: 251286197/INET4460

BILL SENDER

rofins | Environment Testing TestAmerica

1997687

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE
INV:
PO: DEPT:

56DJ5/EB02/FE4A

FedEx Express

J221022010501uv

FedEx Ship Manager - Print Your Label(s)

THU - 24 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7763 7234 6928

80002
XA LAAA CO-US DEN

280-160139 Waybill

3/23/22, 7:37 AM

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-608124.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@Eurofinset.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-160139-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/25/2022			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045	PO #:			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:			
Email:	Project #: 28021258			
Project Name: CCR Groundwater - North Dakota Sites -AVS Landfill	SSOW#:			
Site:				

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)	9315_Ra226/PrecSep_21 Radium-226	9320_Ra228/PrecSep_0 Radium-228	Ra226Ra228_GFPC/ Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-22S (280-160139-1)	3/22/22	10:05 Central		Water			X	X	X	2	
MW-24S (280-160139-2)	3/22/22	11:05 Central		Water			X	X	X	2	
MW-21S (280-160139-3)	3/22/22	12:50 Central		Water			X	X	X	2	
DUP (280-160139-4)	3/22/22	12:50 Central		Water			X	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
1	[signature]	3/25/22 1545	ETA	FED EX		
2	FED EX			Sierra Worthington	MAR 2 8 2022 0845	ETAS
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-160139-1
SDG Number: AVS Landfill

Login Number: 160139
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-160139-1
SDG Number: AVS Landfill

Login Number: 160139
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins St. Louis
List Creation: 03/28/22 12:49 PM

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	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-1
SDG: AVS Landfill

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-160139-1	MW-22S	102
280-160139-2	MW-24S	108
280-160139-3	MW-21S	85.7
280-160139-4	DUP	89.1
LCS 160-557767/1-A	Lab Control Sample	90.9
LCSD 160-557767/2-A	Lab Control Sample Dup	95.8
MB 160-557767/19-A	Method Blank	97.3

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-160139-1	MW-22S	102	82.2
280-160139-2	MW-24S	108	82.6
280-160139-3	MW-21S	85.7	83.4
280-160139-4	DUP	89.1	87.1
LCS 160-557769/1-A	Lab Control Sample	90.9	82.2
LCSD 160-557769/2-A	Lab Control Sample Dup	95.8	83.4
MB 160-557769/19-A	Method Blank	97.3	85.6

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-160139-2
Laboratory Sample Delivery Group: AVS Landfill
Client Project/Site: CCR Groundwater - North Dakota Sites - AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
4/15/2022 1:43:55 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Qualifiers

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

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

Job ID: 280-160139-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - North Dakota Sites -AVS Landfill

Report Number: 280-160139-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 3/24/2022 11:05 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3º C.

TOTAL RECOVERABLE METALS
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 03/31/2022 and analyzed on 04/05/2022 and 04/06/2022.

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

TOTAL METALS (ICPMS)
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared on 03/30/2022 and analyzed on 03/31/2022.

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

TOTAL MERCURY
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/01/2022.

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

TOTAL DISSOLVED SOLIDS
Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 03/25/2022, 03/29/2022 and 03/30/2022.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The following samples in batch 280-5769847 did not have a QC duplicate (-DU) analyzed on a batch of 10 samples: MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-however, the batch precision is demonstrated through passing LCS/LCSD % recovery and RPD. The laboratory reanalyzed the samples out of hold time in batch 280-570244 to confirm results. Both sets of data have been reported.

Job ID: 280-160139-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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

ANIONS (28 DAYS)

Samples MW-22S (280-160139-1), MW-24S (280-160139-2), MW-21S (280-160139-3) and DUP (280-160139-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 04/10/2022 and 04/12/2022.

Samples MW-22S (280-160139-1)[5X], MW-21S (280-160139-3)[5X] and DUP (280-160139-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Client Sample ID: MW-22S — Lab Sample ID: 280-160139-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	159		100		ug/L	1		6010C	Total Recoverable
Calcium	4030		200		ug/L	1		6010C	Total Recoverable
Lithium	52.3		20.0		ug/L	1		6010C	Total Recoverable
Barium	68.9		1.00		ug/L	1		6020A	Total/NA
Chloride	10.2		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.51		0.500		mg/L	1		9056A	Total/NA
Sulfate	230		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1630		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-24S — Lab Sample ID: 280-160139-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	135		100		ug/L	1		6010C	Total Recoverable
Calcium	5420		200		ug/L	1		6010C	Total Recoverable
Lithium	62.6		20.0		ug/L	1		6010C	Total Recoverable
Barium	81.2		1.00		ug/L	1		6020A	Total/NA
Chromium	3.20		2.00		ug/L	1		6020A	Total/NA
Cobalt	1.51		1.00		ug/L	1		6020A	Total/NA
Molybdenum	10.6		2.00		ug/L	1		6020A	Total/NA
Chloride	50.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.23		0.500		mg/L	1		9056A	Total/NA
Sulfate	44.0		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1840		40.0		mg/L	1		SM 2540C	Total/NA
Total Dissolved Solids (TDS)	1970	H	40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21S — Lab Sample ID: 280-160139-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	156		100		ug/L	1		6010C	Total Recoverable
Calcium	6180		200		ug/L	1		6010C	Total Recoverable
Lithium	42.8		20.0		ug/L	1		6010C	Total Recoverable
Barium	47.9		1.00		ug/L	1		6020A	Total/NA
Molybdenum	3.31		2.00		ug/L	1		6020A	Total/NA
Chloride	17.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.20		0.500		mg/L	1		9056A	Total/NA
Sulfate	642		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2160		40.0		mg/L	1		SM 2540C	Total/NA
Total Dissolved Solids (TDS)	2170	H	40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-160139-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	153		100		ug/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Client Sample ID: DUP (Continued) — Lab Sample ID: 280-160139-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	6250		200		ug/L	1		6010C	Total Recoverable
Lithium	40.0		20.0		ug/L	1		6010C	Total Recoverable
Barium	49.5		1.00		ug/L	1		6020A	Total/NA
Molybdenum	3.57		2.00		ug/L	1		6020A	Total/NA
Chloride	17.2		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.24		0.500		mg/L	1		9056A	Total/NA
Sulfate	643		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2180		40.0		mg/L	1		SM 2540C	Total/NA
Total Dissolved Solids (TDS)	2220	H	40.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160139-1	MW-22S	Water	03/22/22 10:05	03/24/22 11:05
280-160139-2	MW-24S	Water	03/22/22 11:05	03/24/22 11:05
280-160139-3	MW-21S	Water	03/22/22 12:50	03/24/22 11:05
280-160139-4	DUP	Water	03/22/22 12:50	03/24/22 11:05

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	159		100		ug/L		03/31/22 11:02	04/05/22 10:26	1
Calcium	4030		200		ug/L		03/31/22 11:02	04/05/22 10:26	1
Lithium	52.3		20.0		ug/L		03/31/22 11:02	04/06/22 22:33	1

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	135		100		ug/L		03/31/22 11:02	04/05/22 10:30	1
Calcium	5420		200		ug/L		03/31/22 11:02	04/05/22 10:30	1
Lithium	62.6		20.0		ug/L		03/31/22 11:02	04/06/22 22:37	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	156		100		ug/L		03/31/22 11:02	04/05/22 10:34	1
Calcium	6180		200		ug/L		03/31/22 11:02	04/05/22 10:34	1
Lithium	42.8		20.0		ug/L		03/31/22 11:02	04/06/22 22:41	1

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	153		100		ug/L		03/31/22 11:02	04/05/22 10:38	1
Calcium	6250		200		ug/L		03/31/22 11:02	04/05/22 10:38	1
Lithium	40.0		20.0		ug/L		03/31/22 11:02	04/06/22 22:46	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Arsenic	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Barium	68.9		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Beryllium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Cadmium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Chromium	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Cobalt	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Lead	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Molybdenum	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Selenium	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:37	1
Thallium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:37	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Arsenic	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Barium	**81.2**		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Beryllium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Cadmium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Chromium	**3.20**		2.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Cobalt	**1.51**		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Lead	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Molybdenum	**10.6**		2.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Selenium	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:41	1
Thallium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:41	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Arsenic	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Barium	**47.9**		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Beryllium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Cadmium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Chromium	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Cobalt	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Lead	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Molybdenum	**3.31**		2.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Selenium	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:44	1
Thallium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:44	1

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Arsenic	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Barium	**49.5**		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Beryllium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Cadmium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Chromium	ND		2.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Cobalt	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Lead	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Molybdenum	**3.57**		2.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Selenium	ND		5.00		ug/L		03/30/22 06:59	03/31/22 19:48	1
Thallium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 19:48	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		04/01/22 11:51	04/01/22 16:10	1

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		04/01/22 11:51	04/01/22 16:13	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		04/01/22 11:51	04/01/22 16:15	1

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		04/01/22 11:51	04/01/22 16:18	1

General Chemistry

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.2		3.00		mg/L			04/10/22 11:24	1
Fluoride	1.51		0.500		mg/L			04/10/22 11:24	1
Sulfate	230		25.0		mg/L			04/12/22 00:31	5
Total Dissolved Solids (TDS)	1630		20.0		mg/L			03/29/22 11:34	1

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.4		3.00		mg/L			04/10/22 11:39	1
Fluoride	1.23		0.500		mg/L			04/10/22 11:39	1
Sulfate	44.0		5.00		mg/L			04/10/22 11:39	1
Total Dissolved Solids (TDS)	1840		40.0		mg/L			03/25/22 15:32	1
Total Dissolved Solids (TDS)	1970	H	40.0		mg/L			03/30/22 13:32	1

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05
Lab Sample ID: 280-160139-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.1		3.00		mg/L			04/10/22 11:55	1
Fluoride	1.20		0.500		mg/L			04/10/22 11:55	1
Sulfate	642		25.0		mg/L			04/10/22 12:10	5
Total Dissolved Solids (TDS)	2160		40.0		mg/L			03/25/22 15:32	1
Total Dissolved Solids (TDS)	2170	H	40.0		mg/L			03/30/22 13:32	1

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

General Chemistry

Client Sample ID: DUP
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.2		3.00		mg/L			04/10/22 12:25	1
Fluoride	1.24		0.500		mg/L			04/10/22 12:25	1
Sulfate	643		25.0		mg/L			04/10/22 12:40	5
Total Dissolved Solids (TDS)	2180		40.0		mg/L			03/25/22 15:32	1
Total Dissolved Solids (TDS)	2220	H	40.0		mg/L			03/30/22 13:32	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-570348/1-A
Matrix: Water
Analysis Batch: 570848

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		03/31/22 11:02	04/05/22 09:13	1
Calcium	ND		200		ug/L		03/31/22 11:02	04/05/22 09:13	1

Lab Sample ID: MB 280-570348/1-A
Matrix: Water
Analysis Batch: 571048

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		20.0		ug/L		03/31/22 11:02	04/06/22 22:13	1

Lab Sample ID: LCS 280-570348/2-A
Matrix: Water
Analysis Batch: 570848

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1000	975.5		ug/L		98	86 - 110
Calcium	50000	49680		ug/L		99	90 - 111

Lab Sample ID: LCS 280-570348/2-A
Matrix: Water
Analysis Batch: 571048

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1000	1005		ug/L		101	90 - 112

Lab Sample ID: LCSD 280-570348/3-A
Matrix: Water
Analysis Batch: 570848

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1000	1052		ug/L		105	86 - 110	8	20
Calcium	50000	52760		ug/L		106	90 - 111	6	20

Lab Sample ID: LCSD 280-570348/3-A
Matrix: Water
Analysis Batch: 571048

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 570348

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	1000	1064		ug/L		106	90 - 112	6	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-570059/1-A
Matrix: Water
Analysis Batch: 570455

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 570059

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Arsenic	ND		5.00		ug/L		03/30/22 06:59	03/31/22 18:26	1

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

Lab Sample ID: MB 280-570059/1-A
Matrix: Water
Analysis Batch: 570455

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 570059

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Beryllium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Cadmium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Chromium	ND		2.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Cobalt	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Lead	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Molybdenum	ND		2.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Selenium	ND		5.00		ug/L		03/30/22 06:59	03/31/22 18:26	1
Thallium	ND		1.00		ug/L		03/30/22 06:59	03/31/22 18:26	1

Lab Sample ID: LCS 280-570059/2-A
Matrix: Water
Analysis Batch: 570455

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 570059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	43.95		ug/L		110	85 - 115
Arsenic	40.0	39.96		ug/L		100	85 - 117
Barium	40.0	43.08		ug/L		108	85 - 118
Beryllium	40.0	39.70		ug/L		99	80 - 125
Cadmium	40.0	40.27		ug/L		101	85 - 115
Chromium	40.0	40.74		ug/L		102	84 - 121
Cobalt	40.0	40.02		ug/L		100	85 - 120
Lead	40.0	41.25		ug/L		103	85 - 118
Molybdenum	40.0	41.98		ug/L		105	85 - 119
Selenium	40.0	39.29		ug/L		98	77 - 122
Thallium	40.0	40.77		ug/L		102	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-570456/1-A
Matrix: Water
Analysis Batch: 570572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 570456

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		04/01/22 11:51	04/01/22 15:58	1

Lab Sample ID: LCS 280-570456/2-A
Matrix: Water
Analysis Batch: 570572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 570456

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.005084		mg/L		102	84 - 120

Lab Sample ID: LCSD 280-570456/3-A
Matrix: Water
Analysis Batch: 570572

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 570456

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.005007		mg/L		100	84 - 120	2	15

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-571341/83
Matrix: Water
Analysis Batch: 571341

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			04/10/22 09:25	1
Fluoride	ND		0.500		mg/L			04/10/22 09:25	1
Sulfate	ND		5.00		mg/L			04/10/22 09:25	1

Lab Sample ID: LCS 280-571341/81
Matrix: Water
Analysis Batch: 571341

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.99		mg/L		99	90 - 110
Fluoride	5.00	4.817		mg/L		96	90 - 110
Sulfate	100	97.46		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-571341/82
Matrix: Water
Analysis Batch: 571341

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	99.05		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.913		mg/L		98	90 - 110	2	10
Sulfate	100	97.48		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-571341/3
Matrix: Water
Analysis Batch: 571341

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	5.032		mg/L		101	50 - 150
Fluoride	0.500	0.5206		mg/L		104	50 - 150
Sulfate	5.00	ND		mg/L		96	50 - 150

Lab Sample ID: MB 280-571398/13
Matrix: Water
Analysis Batch: 571398

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.00		mg/L			04/11/22 15:13	1

Lab Sample ID: LCS 280-571398/11
Matrix: Water
Analysis Batch: 571398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	97.49		mg/L		97	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-571398/12
Matrix: Water
Analysis Batch: 571398

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			100	97.50		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-571398/10
Matrix: Water
Analysis Batch: 571398

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			5.00	ND		mg/L		84	50 - 150		

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

Lab Sample ID: MB 280-569847/1
Matrix: Water
Analysis Batch: 569847

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 (TDS)	ND		10.0		mg/L			03/25/22 15:32	1

Lab Sample ID: LCS 280-569847/2
Matrix: Water
Analysis Batch: 569847

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 (TDS)			504	486.0		mg/L		96	88 - 114		

Lab Sample ID: LCSD 280-569847/3
Matrix: Water
Analysis Batch: 569847

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			504	488.0		mg/L		97	88 - 114	0	20

Lab Sample ID: MB 280-570088/1
Matrix: Water
Analysis Batch: 570088

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 (TDS)	ND		10.0		mg/L			03/29/22 10:34	1

Lab Sample ID: LCS 280-570088/2
Matrix: Water
Analysis Batch: 570088

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 (TDS)			504	490.0		mg/L		97	88 - 114		

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

Lab Sample ID: 280-160139-1 DU
Matrix: Water
Analysis Batch: 570088

Client Sample ID: MW-22S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	1630			1644		mg/L				0.7	10

Lab Sample ID: MB 280-570244/1
Matrix: Water
Analysis Batch: 570244

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 (TDS)	ND		10.0		mg/L			03/30/22 13:32	1

Lab Sample ID: LCS 280-570244/2
Matrix: Water
Analysis Batch: 570244

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 (TDS)			505	493.0		mg/L		98	88 - 114		

Lab Sample ID: 280-160139-2 DU
Matrix: Water
Analysis Batch: 570244

Client Sample ID: MW-24S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	1970	H		1968		mg/L				0.2	10

Metals

Prep Batch: 570059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	3020A	
280-160139-2	MW-24S	Total/NA	Water	3020A	
280-160139-3	MW-21S	Total/NA	Water	3020A	
280-160139-4	DUP	Total/NA	Water	3020A	
MB 280-570059/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-570059/2-A	Lab Control Sample	Total/NA	Water	3020A	

Prep Batch: 570348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total Recoverable	Water	3005A	
280-160139-2	MW-24S	Total Recoverable	Water	3005A	
280-160139-3	MW-21S	Total Recoverable	Water	3005A	
280-160139-4	DUP	Total Recoverable	Water	3005A	
MB 280-570348/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-570348/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-570348/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 570455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	6020A	570059
280-160139-2	MW-24S	Total/NA	Water	6020A	570059
280-160139-3	MW-21S	Total/NA	Water	6020A	570059
280-160139-4	DUP	Total/NA	Water	6020A	570059
MB 280-570059/1-A	Method Blank	Total/NA	Water	6020A	570059
LCS 280-570059/2-A	Lab Control Sample	Total/NA	Water	6020A	570059

Prep Batch: 570456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	7470A	
280-160139-2	MW-24S	Total/NA	Water	7470A	
280-160139-3	MW-21S	Total/NA	Water	7470A	
280-160139-4	DUP	Total/NA	Water	7470A	
MB 280-570456/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-570456/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-570456/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 570572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	7470A	570456
280-160139-2	MW-24S	Total/NA	Water	7470A	570456
280-160139-3	MW-21S	Total/NA	Water	7470A	570456
280-160139-4	DUP	Total/NA	Water	7470A	570456
MB 280-570456/1-A	Method Blank	Total/NA	Water	7470A	570456
LCS 280-570456/2-A	Lab Control Sample	Total/NA	Water	7470A	570456
LCSD 280-570456/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	570456

Analysis Batch: 570848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total Recoverable	Water	6010C	570348
280-160139-2	MW-24S	Total Recoverable	Water	6010C	570348

Metals (Continued)

Analysis Batch: 570848 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-3	MW-21S	Total Recoverable	Water	6010C	570348
280-160139-4	DUP	Total Recoverable	Water	6010C	570348
MB 280-570348/1-A	Method Blank	Total Recoverable	Water	6010C	570348
LCS 280-570348/2-A	Lab Control Sample	Total Recoverable	Water	6010C	570348
LCSD 280-570348/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	570348

Analysis Batch: 571048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total Recoverable	Water	6010C	570348
280-160139-2	MW-24S	Total Recoverable	Water	6010C	570348
280-160139-3	MW-21S	Total Recoverable	Water	6010C	570348
280-160139-4	DUP	Total Recoverable	Water	6010C	570348
MB 280-570348/1-A	Method Blank	Total Recoverable	Water	6010C	570348
LCS 280-570348/2-A	Lab Control Sample	Total Recoverable	Water	6010C	570348
LCSD 280-570348/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	570348

General Chemistry

Analysis Batch: 569847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-2	MW-24S	Total/NA	Water	SM 2540C	
280-160139-3	MW-21S	Total/NA	Water	SM 2540C	
280-160139-4	DUP	Total/NA	Water	SM 2540C	
MB 280-569847/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-569847/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-569847/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 570088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	SM 2540C	
MB 280-570088/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-570088/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-160139-1 DU	MW-22S	Total/NA	Water	SM 2540C	

Analysis Batch: 570244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-2	MW-24S	Total/NA	Water	SM 2540C	
280-160139-3	MW-21S	Total/NA	Water	SM 2540C	
280-160139-4	DUP	Total/NA	Water	SM 2540C	
MB 280-570244/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-570244/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-160139-2 DU	MW-24S	Total/NA	Water	SM 2540C	

Analysis Batch: 571341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	9056A	
280-160139-2	MW-24S	Total/NA	Water	9056A	
280-160139-3	MW-21S	Total/NA	Water	9056A	
280-160139-3	MW-21S	Total/NA	Water	9056A	
280-160139-4	DUP	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 571341 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-4	DUP	Total/NA	Water	9056A	
MB 280-571341/83	Method Blank	Total/NA	Water	9056A	
LCS 280-571341/81	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-571341/82	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-571341/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 571398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160139-1	MW-22S	Total/NA	Water	9056A	
MB 280-571398/13	Method Blank	Total/NA	Water	9056A	
LCS 280-571398/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-571398/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-571398/10	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Client Sample ID: MW-22S
Date Collected: 03/22/22 10:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			570848	04/05/22 10:26	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			571048	04/06/22 22:33	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	570059	03/30/22 06:59	KMS	TAL DEN
Total/NA	Analysis	6020A		1			570455	03/31/22 19:37	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	570456	04/01/22 11:51	MAB	TAL DEN
Total/NA	Analysis	7470A		1			570572	04/01/22 16:10	MAB	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571341	04/10/22 11:24	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	571398	04/12/22 00:31	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	570088	03/29/22 11:34	LRB	TAL DEN

Client Sample ID: MW-24S
Date Collected: 03/22/22 11:05
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			570848	04/05/22 10:30	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			571048	04/06/22 22:37	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	570059	03/30/22 06:59	KMS	TAL DEN
Total/NA	Analysis	6020A		1			570455	03/31/22 19:41	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	570456	04/01/22 11:51	MAB	TAL DEN
Total/NA	Analysis	7470A		1			570572	04/01/22 16:13	MAB	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571341	04/10/22 11:39	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	569847	03/25/22 15:32	ECC	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	570244	03/30/22 13:32	LRB	TAL DEN

Client Sample ID: MW-21S
Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			570848	04/05/22 10:34	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			571048	04/06/22 22:41	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	570059	03/30/22 06:59	KMS	TAL DEN
Total/NA	Analysis	6020A		1			570455	03/31/22 19:44	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	570456	04/01/22 11:51	MAB	TAL DEN
Total/NA	Analysis	7470A		1			570572	04/01/22 16:15	MAB	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571341	04/10/22 11:55	RAF	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Client Sample ID: MW-21S

Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	10 mL	10 mL	571341	04/10/22 12:10	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	569847	03/25/22 15:32	ECC	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	570244	03/30/22 13:32	LRB	TAL DEN

Client Sample ID: DUP

Date Collected: 03/22/22 12:50
Date Received: 03/24/22 11:05

Lab Sample ID: 280-160139-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			570848	04/05/22 10:38	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	570348	03/31/22 11:02	MB	TAL DEN
Total Recoverable	Analysis	6010C		1			571048	04/06/22 22:46	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	570059	03/30/22 06:59	KMS	TAL DEN
Total/NA	Analysis	6020A		1			570455	03/31/22 19:48	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	570456	04/01/22 11:51	MAB	TAL DEN
Total/NA	Analysis	7470A		1			570572	04/01/22 16:18	MAB	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571341	04/10/22 12:25	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571341	04/10/22 12:40	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	569847	03/25/22 15:32	ECC	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	570244	03/30/22 13:32	LRB	TAL DEN

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - North Dakota Sites -AVS Landfill

Job ID: 280-160139-2
SDG: AVS Landfill

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-09-23

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Aaron Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1
Company: Basin Electric Power Cooperative				Job #:

Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested
City: Stanton	TAT Requested (days): Standard	
State, Zip: ND, 58571	PO #: Purchase Order Requested	
Phone: 701-745-7238(Tel)	WO #:	
Email: aknutson@bepc.com		
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258	
Site: AVS LANDFILL	SSOW#:	

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-22S	3-22-22	1005	G	W			X	X	X	X	X		pH - 8.27
MW-24S	3-22-22	1120	G	W			↓	↓	↓	↓	↓		pH - 8.23
MW-21S	3-22-22	1250	G	W			↓	↓	↓	↓	↓		pH - 8.13
DUP	3-22-22	1250	G	W			↓	↓	↓	↓	↓		pH - 8.13

280-160139 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
1		3-23-22 0700	BEPC		3/24/22 1105	ETADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 0.5 CF -0.2 IR 13

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 23MAR22
ACTWGT: 65.00 LB
CAD: 251286197/INET4460

BILL SENDER

rofins | Environment Testing TestAmerica

1997687

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE
INV:
PO: DEPT:

56DJ5/EB02/FE4A

FedEx Express

J221022010501uv

FedEx Ship Manager - Print Your Label(s)

THU - 24 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7763 7234 6928

80002
DEN
CO-US

XA LAAA

280-160139 Waybill

3/23/22, 7:37 AM

4/15/2022

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-160139-2
SDG Number: AVS Landfill

Login Number: 160139
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162908-1
Laboratory Sample Delivery Group: AVS Landfill New Wells
Client Project/Site: CCR Groundwater - ND Sites - AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
6/29/2022 1:58:26 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-1
SDG: AVS Landfill New Wells

Qualifiers

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
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: 280-162908-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS Landfill

Report Number: 280-162908-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

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.

RECEIPT
The samples were received on 5/31/2022 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 15.9º C.

The following samples were received at the laboratory outside the required temperature criteria at 15.9C: MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4). This does not meet regulatory requirements. It can be noted that metals and radiochemistry methods do not require thermal preservation. The only impacted methods are 9056A CL/FL/SO4 and 2540C TDS. The client was contacted on 5/31/22 regarding this issue, and the laboratory was instructed to cancel 9056A CL/FL/SO4 and 2540C TDS. The laboratory will only proceed with the requested metals and radiochemistry analyses. The client will recollect volume for Anions and TDS at a later date.

RADIUM-226 (GFPC)
Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 06/03/2022 and analyzed on 06/27/2022.

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

RADIUM-228
Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 06/03/2022 and analyzed on 06/21/2022.

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

RADIUM-226/RADIUM-228 (GFPC)
Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/28/2022.

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

Job ID: 280-162908-1 (Continued)

Laboratory: Eurofins Denver (Continued)

RAD
Methods 903.0, 9315: Radium-226 batch 568241
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.
MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3), DUP (280-162908-4), (LCS 160-568241/1-A), (MB 160-568241/21-A), (160-45635-B-1-B) and (160-45635-B-1-C DU)

Methods 904.0, 9320: Radium-228 batch 568242
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.
MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3), DUP (280-162908-4), (LCS 160-568242/1-A), (MB 160-568242/21-A), (160-45635-B-1-D) and (160-45635-B-1-E DU)

Method PrecSep_0:

Method PrecSep-21:

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

Detection Summary

Client: Basin Electric Power Cooperative
Job ID: 280-162908-1
Project/Site: CCR Groundwater - ND Sites - AVS Landfill
SDG: AVS Landfill New Wells

Client Sample ID: MW-24S — Lab Sample ID: 280-162908-1

No Detections.

Client Sample ID: MW-22S — Lab Sample ID: 280-162908-2

No Detections.

Client Sample ID: MW-21S — Lab Sample ID: 280-162908-3

No Detections.

Client Sample ID: DUP — Lab Sample ID: 280-162908-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-1
SDG: AVS Landfill New Wells

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-1
SDG: AVS Landfill New Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162908-1	MW-24S	Water	05/26/22 09:05	05/31/22 09:40
280-162908-2	MW-22S	Water	05/26/22 10:15	05/31/22 09:40
280-162908-3	MW-21S	Water	05/26/22 11:40	05/31/22 09:40
280-162908-4	DUP	Water	05/26/22 11:40	05/31/22 09:40

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108	U	0.152	0.152	1.00	0.257	pCi/L	06/03/22 10:08	06/27/22 13:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*06/03/22 10:08*	*06/27/22 13:38*	*1*

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0412	U	0.0894	0.0895	1.00	0.217	pCi/L	06/03/22 10:08	06/27/22 13:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*06/03/22 10:08*	*06/27/22 13:38*	*1*

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101	U	0.0936	0.0941	1.00	0.141	pCi/L	06/03/22 10:08	06/27/22 13:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.0*		*40 - 110*	*06/03/22 10:08*	*06/27/22 13:38*	*1*

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0634	U	0.109	0.109	1.00	0.190	pCi/L	06/03/22 10:08	06/27/22 13:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.3*		*40 - 110*	*06/03/22 10:08*	*06/27/22 13:39*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.09**		0.589	0.598	1.00	0.809	pCi/L	06/03/22 10:36	06/21/22 12:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*06/03/22 10:36*	*06/21/22 12:00*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	81.9		40 - 110	06/03/22 10:36	06/21/22 12:00	1

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.427	U	0.497	0.499	1.00	0.816	pCi/L	06/03/22 10:36	06/21/22 12:00	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	06/03/22 10:36	06/21/22 12:00	1
Y Carrier	86.4		40 - 110	06/03/22 10:36	06/21/22 12:00	1

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.402	U	0.420	0.421	1.00	0.681	pCi/L	06/03/22 10:36	06/21/22 12:00	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.0		40 - 110	06/03/22 10:36	06/21/22 12:00	1
Y Carrier	84.1		40 - 110	06/03/22 10:36	06/21/22 12:00	1

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.782**		0.457	0.462	1.00	0.665	pCi/L	06/03/22 10:36	06/21/22 12:00	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110	06/03/22 10:36	06/21/22 12:00	1
Y Carrier	84.9		40 - 110	06/03/22 10:36	06/21/22 12:00	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.20**		0.608	0.617	5.00	0.809	pCi/L		06/28/22 14:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.386	U	0.505	0.507	5.00	0.816	pCi/L		06/28/22 14:11	1

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.503	U	0.430	0.431	5.00	0.681	pCi/L		06/28/22 14:11	1

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.845**		0.470	0.475	5.00	0.665	pCi/L		06/28/22 14:11	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-568241/21-A
Matrix: Water
Analysis Batch: 571791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568241

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.08051	U	0.0717	0.0721	1.00	0.108	pCi/L	06/03/22 10:08	06/27/22 14:11	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*06/03/22 10:08*	*06/27/22 14:11*	*1*

Lab Sample ID: LCS 160-568241/1-A
Matrix: Water
Analysis Batch: 571791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568241

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	12.30		1.30	1.00	0.107	pCi/L	108	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-568242/21-A
Matrix: Water
Analysis Batch: 570920

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568242

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1152	U	0.200	0.200	1.00	0.410	pCi/L	06/03/22 10:36	06/21/22 12:03	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*06/03/22 10:36*	*06/21/22 12:03*	*1*
Y Carrier	*93.1*		*40 - 110*	*06/03/22 10:36*	*06/21/22 12:03*	*1*

Lab Sample ID: LCS 160-568242/1-A
Matrix: Water
Analysis Batch: 570941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568242

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.51	7.689		1.04	1.00	0.407	pCi/L	90	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Rad

Prep Batch: 568241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	PrecSep-21	
280-162908-2	MW-22S	Total/NA	Water	PrecSep-21	
280-162908-3	MW-21S	Total/NA	Water	PrecSep-21	
280-162908-4	DUP	Total/NA	Water	PrecSep-21	
MB 160-568241/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-568241/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 568242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	PrecSep_0	
280-162908-2	MW-22S	Total/NA	Water	PrecSep_0	
280-162908-3	MW-21S	Total/NA	Water	PrecSep_0	
280-162908-4	DUP	Total/NA	Water	PrecSep_0	
MB 160-568242/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-568242/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-1
SDG: AVS Landfill New Wells

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			504.73 mL	1.0 g	568241	06/03/22 10:08	MS	TAL SL
Total/NA	Analysis	9315		1			571791	06/27/22 13:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			504.73 mL	1.0 g	568242	06/03/22 10:36	MS	TAL SL
Total/NA	Analysis	9320		1			570920	06/21/22 12:00	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			572029	06/28/22 14:11	EMH	TAL SL

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.32 mL	1.0 g	568241	06/03/22 10:08	MS	TAL SL
Total/NA	Analysis	9315		1			571791	06/27/22 13:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			500.32 mL	1.0 g	568242	06/03/22 10:36	MS	TAL SL
Total/NA	Analysis	9320		1			570920	06/21/22 12:00	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			572029	06/28/22 14:11	EMH	TAL SL

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.93 mL	1.0 g	568241	06/03/22 10:08	MS	TAL SL
Total/NA	Analysis	9315		1			571791	06/27/22 13:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			749.93 mL	1.0 g	568242	06/03/22 10:36	MS	TAL SL
Total/NA	Analysis	9320		1			570920	06/21/22 12:00	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			572029	06/28/22 14:11	EMH	TAL SL

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.12 mL	1.0 g	568241	06/03/22 10:08	MS	TAL SL
Total/NA	Analysis	9315		1			571799	06/27/22 13:39	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.12 mL	1.0 g	568242	06/03/22 10:36	MS	TAL SL
Total/NA	Analysis	9320		1			570920	06/21/22 12:00	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			572029	06/28/22 14:11	EMH	TAL SL

Laboratory References:

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-162908-1
Project/Site: CCR Groundwater - ND Sites - AVS Landfill
SDG: AVS Landfill New Wells

Laboratory: Eurofins 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	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1
Company: Basin Electric Power Cooperative				Job #:

Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Stanton	TAT Requested (days):		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)
State, Zip: ND, 58571			
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested		Other:
Email: aknutson@bepc.com	WO #:		
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258		
Site: AVS LANDFILL New wells	SSOW#:		

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)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-24S	5-26-22	0905	G	W			X	X	X	X	X		pH - 8.96 AK 7.79
MW-22S	5-26-22	1015	G	W			X	X	X	X	X		pH - 7.81
MW-21S	5-26-22	~~1015~~ 1140	G	W			X	X	X	X	X		pH - 7.63
Dup	5-26-22	1140	G	W			X	X	X	X	X		

280-162908 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological	☐ 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
	5-27-22 0800			5/31/22 0940	ETADSU
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.8 CF +0.1 IR2

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY22
ACTWGT: 55.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVE
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV:
PO:

REF: CCR GROUNDWATER - ND SITE
DEPT:

eurofins | Environment Testing TestAmerica

1966871

FedEx Express

J222022041201uw

15.8

TUE - 31 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7769 7736 1271

XA LAAA

800 02
CO-US DEN

FedEx Ship Manager - Print Your Label(s)

280-162908 Waybill

5/27/22; 7:36 AM

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY22
ACTWGT: 55.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVE
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE
INV:
PO: DEPT:

eurofins | Environment Testing TestAmerica

1966871

FedEx Express

J222022041281uv

FedEx Ship Manager - Print Your Label(s)

280-162908 Waybill

TRK# 0201 7769 7736 1271

TUE - 31 MAY 10:30A
PRIORITY OVERNIGHT

XA LAAA

80002
CO-US DEN

5/27/22 7:36 AM

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-616695.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@et.eurofinsus.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-162908-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/29/2022			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR Groundwater - ND Sites - AVS Landfill	Project #: 28021258			
Site:	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, Y - Trizma, 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)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-24S (280-162908-1)	5/26/22	09:05 Central		Water			X	X	X	2	
MW-22S (280-162908-2)	5/26/22	10:15 Central		Water			X	X	X	2	
MW-21S (280-162908-3)	5/26/22	11:40 Central		Water			X	X	X	2	
DUP (280-162908-4)	5/26/22	11:40 Central		Water			X	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
1	[signature]	6/1/22 1430	ETADN	FED EX		
2	FED EX			Sierra Worthington	JUN 02 2022 0845	EMSR
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-162908-1
SDG Number: AVS Landfill New Wells

Login Number: 162908
List Number: 1
Creator: Kazenga, Oliver M

List Source: Eurofins Denver

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.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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?	False	
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	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-162908-1
SDG Number: AVS Landfill New Wells

Login Number: 162908
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins St. Louis
List Creation: 06/02/22 09:35 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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-1
SDG: AVS Landfill New Wells

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-162908-1	MW-24S	101
280-162908-2	MW-22S	100
280-162908-3	MW-21S	99.0
280-162908-4	DUP	99.3
LCS 160-568241/1-A	Lab Control Sample	101
MB 160-568241/21-A	Method Blank	106

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-162908-1	MW-24S	101	81.9
280-162908-2	MW-22S	100	86.4
280-162908-3	MW-21S	99.0	84.1
280-162908-4	DUP	99.3	84.9
LCS 160-568242/1-A	Lab Control Sample	101	90.8
MB 160-568242/21-A	Method Blank	106	93.1

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162908-2
Laboratory Sample Delivery Group: AVS Landfill New Wells
Client Project/Site: CCR Groundwater - ND Sites - AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
6/24/2022 2:50:17 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.

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: 280-162908-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS Landfill

Report Number: 280-162908-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 5/31/2022 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 15.9º C.

The following samples were received at the laboratory outside the required temperature criteria at 15.9C: MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4). This does not meet regulatory requirements. It can be noted that metals and radiochemistry methods do not require thermal preservation. The only impacted methods are 9056A CL/FL/SO4 and 2540C TDS. The client was contacted on 5/31/22 regarding this issue, and the laboratory was instructed to cancel 9056A CL/FL/SO4 and 2540C TDS. The laboratory will only proceed with the requested metals and radiochemistry analyses. The client will recollect volume for Anions and TDS at a later date.

TOTAL RECOVERABLE METALS

Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/20/2022 and analyzed on 06/21/2022 and 06/22/2022.

The low level continuing calibration verification (CCVL) associated with batch 280-578742 recovered above the upper control limit for Lithium. The samples associated with this CCV did not contain the affected analyte at a level greater than the reporting limit (RL); therefore, the data has been reported.

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

TOTAL METALS (ICPMS)

Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared and analyzed on 06/08/2022.

The interference check standard solution (ICSA) associated with batch 280-577562 had results for one or more elements at a level greater than the RL. The initial ICSA result (3.46 ppb) was >2x RL of 1 ppb for Barium. 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.

Job ID: 280-162908-2 (Continued)

Laboratory: Eurofins Denver (Continued)

TOTAL MERCURY

Samples MW-24S (280-162908-1), MW-22S (280-162908-2), MW-21S (280-162908-3) and DUP (280-162908-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 06/08/2022 and analyzed on 06/09/2022.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Client Sample ID: MW-24S — Lab Sample ID: 280-162908-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	125		100		ug/L	1		6010C	Total Recoverable
Calcium	5070		200		ug/L	1		6010C	Total Recoverable
Lithium	61.3		20.0		ug/L	1		6010C	Total Recoverable
Barium	82.7	^6+	1.00		ug/L	1		6020A	Total/NA
Chromium	3.54		2.00		ug/L	1		6020A	Total/NA
Cobalt	1.45		1.00		ug/L	1		6020A	Total/NA
Molybdenum	11.5		2.00		ug/L	1		6020A	Total/NA

Client Sample ID: MW-22S — Lab Sample ID: 280-162908-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	143		100		ug/L	1		6010C	Total Recoverable
Calcium	2430		200		ug/L	1		6010C	Total Recoverable
Lithium	47.1		20.0		ug/L	1		6010C	Total Recoverable
Barium	64.6	^6+	1.00		ug/L	1		6020A	Total/NA

Client Sample ID: MW-21S — Lab Sample ID: 280-162908-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	140		100		ug/L	1		6010C	Total Recoverable
Calcium	5250		200		ug/L	1		6010C	Total Recoverable
Lithium	43.1		20.0		ug/L	1		6010C	Total Recoverable
Barium	51.4	^6+	1.00		ug/L	1		6020A	Total/NA
Molybdenum	3.07		2.00		ug/L	1		6020A	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-162908-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	140		100		ug/L	1		6010C	Total Recoverable
Calcium	5240		200		ug/L	1		6010C	Total Recoverable
Lithium	41.6		20.0		ug/L	1		6010C	Total Recoverable
Barium	48.1	^6+	1.00		ug/L	1		6020A	Total/NA
Molybdenum	2.95		2.00		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

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

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162908-1	MW-24S	Water	05/26/22 09:05	05/31/22 09:40
280-162908-2	MW-22S	Water	05/26/22 10:15	05/31/22 09:40
280-162908-3	MW-21S	Water	05/26/22 11:40	05/31/22 09:40
280-162908-4	DUP	Water	05/26/22 11:40	05/31/22 09:40

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**125**		100		ug/L		06/20/22 08:27	06/21/22 16:48	1
Calcium	**5070**		200		ug/L		06/20/22 08:27	06/21/22 16:48	1
Lithium	**61.3**		20.0		ug/L		06/20/22 08:27	06/22/22 14:54	1

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**143**		100		ug/L		06/20/22 08:27	06/21/22 16:53	1
Calcium	**2430**		200		ug/L		06/20/22 08:27	06/21/22 16:53	1
Lithium	**47.1**		20.0		ug/L		06/20/22 08:27	06/22/22 14:58	1

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**140**		100		ug/L		06/20/22 08:27	06/21/22 17:13	1
Calcium	**5250**		200		ug/L		06/20/22 08:27	06/21/22 17:13	1
Lithium	**43.1**		20.0		ug/L		06/20/22 08:27	06/22/22 15:02	1

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**140**		100		ug/L		06/20/22 08:27	06/21/22 17:17	1
Calcium	**5240**		200		ug/L		06/20/22 08:27	06/21/22 17:17	1
Lithium	**41.6**		20.0		ug/L		06/20/22 08:27	06/22/22 15:06	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Arsenic	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Barium	**82.7**	**^6+**	1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Beryllium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Cadmium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Chromium	**3.54**		2.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Cobalt	**1.45**		1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Lead	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Molybdenum	**11.5**		2.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Selenium	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:35	1
Thallium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:35	1

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:39	1

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

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Barium	**64.6**	**^6+**	1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Beryllium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Cadmium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Chromium	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Cobalt	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Lead	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Molybdenum	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Selenium	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:39	1
Thallium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:39	1

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Arsenic	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Barium	**51.4**	**^6+**	1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Beryllium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Cadmium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Chromium	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Cobalt	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Lead	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Molybdenum	**3.07**		2.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Selenium	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:43	1
Thallium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:43	1

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Arsenic	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Barium	**48.1**	**^6+**	1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Beryllium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Cadmium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Chromium	ND		2.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Cobalt	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Lead	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Molybdenum	**2.95**		2.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Selenium	ND		5.00		ug/L		06/08/22 06:59	06/08/22 21:47	1
Thallium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 21:47	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-24S
Date Collected: 05/26/22 09:05
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/08/22 16:33	06/09/22 17:04	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-22S
Date Collected: 05/26/22 10:15
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/08/22 16:33	06/09/22 17:07	1

Client Sample ID: MW-21S
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/08/22 16:33	06/09/22 17:09	1

Client Sample ID: DUP
Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40
Lab Sample ID: 280-162908-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/08/22 16:33	06/09/22 17:12	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-578367/1-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578367

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		06/20/22 08:27	06/21/22 15:52	1
Calcium	ND		200		ug/L		06/20/22 08:27	06/21/22 15:52	1
Lithium	ND		20.0		ug/L		06/20/22 08:27	06/21/22 15:52	1

Lab Sample ID: LCS 280-578367/2-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578367

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2038		ug/L		102	86 - 110
Calcium	50000	50550		ug/L		101	90 - 111
Lithium	1000	1041		ug/L		104	90 - 112

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-577346/1-A
Matrix: Water
Analysis Batch: 577562

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 577346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Arsenic	ND		5.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Barium	ND	^6+	1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Beryllium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Cadmium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Chromium	ND		2.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Cobalt	ND		1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Lead	ND		1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Molybdenum	ND		2.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Selenium	ND		5.00		ug/L		06/08/22 06:59	06/08/22 20:39	1
Thallium	ND		1.00		ug/L		06/08/22 06:59	06/08/22 20:39	1

Lab Sample ID: LCS 280-577346/2-A
Matrix: Water
Analysis Batch: 577562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 577346

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	42.57		ug/L		106	85 - 115
Arsenic	40.0	39.50		ug/L		99	85 - 117
Barium	40.0	43.24	^6+	ug/L		108	85 - 118
Beryllium	40.0	40.83		ug/L		102	80 - 125
Cadmium	40.0	36.97		ug/L		92	85 - 115
Chromium	40.0	40.18		ug/L		100	84 - 121
Cobalt	40.0	39.71		ug/L		99	85 - 120
Lead	40.0	40.93		ug/L		102	85 - 118
Molybdenum	40.0	39.36		ug/L		98	85 - 119
Selenium	40.0	40.66		ug/L		102	77 - 122
Thallium	40.0	40.74		ug/L		102	85 - 118

QC Sample Results

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-577504/1-A
Matrix: Water
Analysis Batch: 577670

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 577504

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		06/08/22 16:33	06/09/22 16:31	1

Lab Sample ID: LCS 280-577504/2-A
Matrix: Water
Analysis Batch: 577670

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 577504

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.004861		mg/L		97	84 - 120		

Metals

Prep Batch: 577346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	3020A	
280-162908-2	MW-22S	Total/NA	Water	3020A	
280-162908-3	MW-21S	Total/NA	Water	3020A	
280-162908-4	DUP	Total/NA	Water	3020A	
MB 280-577346/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-577346/2-A	Lab Control Sample	Total/NA	Water	3020A	

Prep Batch: 577504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	7470A	
280-162908-2	MW-22S	Total/NA	Water	7470A	
280-162908-3	MW-21S	Total/NA	Water	7470A	
280-162908-4	DUP	Total/NA	Water	7470A	
MB 280-577504/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-577504/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 577562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	6020A	577346
280-162908-2	MW-22S	Total/NA	Water	6020A	577346
280-162908-3	MW-21S	Total/NA	Water	6020A	577346
280-162908-4	DUP	Total/NA	Water	6020A	577346
MB 280-577346/1-A	Method Blank	Total/NA	Water	6020A	577346
LCS 280-577346/2-A	Lab Control Sample	Total/NA	Water	6020A	577346

Analysis Batch: 577670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total/NA	Water	7470A	577504
280-162908-2	MW-22S	Total/NA	Water	7470A	577504
280-162908-3	MW-21S	Total/NA	Water	7470A	577504
280-162908-4	DUP	Total/NA	Water	7470A	577504
MB 280-577504/1-A	Method Blank	Total/NA	Water	7470A	577504
LCS 280-577504/2-A	Lab Control Sample	Total/NA	Water	7470A	577504

Prep Batch: 578367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total Recoverable	Water	3005A	
280-162908-2	MW-22S	Total Recoverable	Water	3005A	
280-162908-3	MW-21S	Total Recoverable	Water	3005A	
280-162908-4	DUP	Total Recoverable	Water	3005A	
MB 280-578367/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-578367/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 578742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total Recoverable	Water	6010C	578367
280-162908-2	MW-22S	Total Recoverable	Water	6010C	578367
280-162908-3	MW-21S	Total Recoverable	Water	6010C	578367
280-162908-4	DUP	Total Recoverable	Water	6010C	578367
MB 280-578367/1-A	Method Blank	Total Recoverable	Water	6010C	578367
LCS 280-578367/2-A	Lab Control Sample	Total Recoverable	Water	6010C	578367

QC Association Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Metals

Analysis Batch: 578890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162908-1	MW-24S	Total Recoverable	Water	6010C	578367
280-162908-2	MW-22S	Total Recoverable	Water	6010C	578367
280-162908-3	MW-21S	Total Recoverable	Water	6010C	578367
280-162908-4	DUP	Total Recoverable	Water	6010C	578367

Client Sample ID: MW-24S
Lab Sample ID: 280-162908-1

Date Collected: 05/26/22 09:05
Matrix: Water
Date Received: 05/31/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578742	06/21/22 16:48	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578890	06/22/22 14:54	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	577346	06/08/22 06:59	MAB	TAL DEN
Total/NA	Analysis	6020A		1			577562	06/08/22 21:35	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	577504	06/08/22 16:33	CEH	TAL DEN
Total/NA	Analysis	7470A		1			577670	06/09/22 17:04	CEH	TAL DEN

Client Sample ID: MW-22S
Lab Sample ID: 280-162908-2

Date Collected: 05/26/22 10:15
Matrix: Water
Date Received: 05/31/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578742	06/21/22 16:53	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578890	06/22/22 14:58	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	577346	06/08/22 06:59	MAB	TAL DEN
Total/NA	Analysis	6020A		1			577562	06/08/22 21:39	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	577504	06/08/22 16:33	CEH	TAL DEN
Total/NA	Analysis	7470A		1			577670	06/09/22 17:07	CEH	TAL DEN

Client Sample ID: MW-21S
Lab Sample ID: 280-162908-3

Date Collected: 05/26/22 11:40
Matrix: Water
Date Received: 05/31/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578742	06/21/22 17:13	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578890	06/22/22 15:02	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	577346	06/08/22 06:59	MAB	TAL DEN
Total/NA	Analysis	6020A		1			577562	06/08/22 21:43	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	577504	06/08/22 16:33	CEH	TAL DEN
Total/NA	Analysis	7470A		1			577670	06/09/22 17:09	CEH	TAL DEN

Client Sample ID: DUP
Lab Sample ID: 280-162908-4

Date Collected: 05/26/22 11:40
Matrix: Water
Date Received: 05/31/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578742	06/21/22 17:17	MAB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-162908-2
SDG: AVS Landfill New Wells

Client Sample ID: DUP

Date Collected: 05/26/22 11:40
Date Received: 05/31/22 09:40

Lab Sample ID: 280-162908-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578890	06/22/22 15:06	MAB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	577346	06/08/22 06:59	MAB	TAL DEN
Total/NA	Analysis	6020A		1			577562	06/08/22 21:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	577504	06/08/22 16:33	CEH	TAL DEN
Total/NA	Analysis	7470A		1			577670	06/09/22 17:12	CEH	TAL DEN

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-162908-2
Project/Site: CCR Groundwater - ND Sites - AVS Landfill
SDG: AVS Landfill New Wells

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-23

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
7470A	7470A	Water	Mercury

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1
Company: Basin Electric Power Cooperative				Job #:

Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Stanton	TAT Requested (days):		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)
State, Zip: ND, 58571			
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested		Other:
Email: aknutson@bepc.com	WO #:		
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258		
Site: AVS LANDFILL New wells	SSOW#:		

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)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-24S	5-26-22	0905	G	W			X	X	X	X	X		pH - 8.96 AK 7.79
MW-22S	5-26-22	1015	G	W			X	X	X	X	X		pH - 7.81
MW-21S	5-26-22	~~1015~~ 1140	G	W			X	X	X	X	X		pH - 7.63
Dup	5-26-22	1140	G	W			X	X	X	X	X		

280-162908 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological	☐ 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
	5-27-22 0800			5/31/22 0940	ETADSU
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.8 CF +0.1 Trip

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY22
ACTWGT: 55.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVE
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV:
PO:

REF: CCR GROUNDWATER - ND SITE
DEPT:

eurofins | Environment Testing TestAmerica

1966871

FedEx Express

J222022041201uw

TUE - 31 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7769 7736 1271

XA LAAA

80002
CO-US DEN

FedEx Ship Manager - Print Your Label(s)

280-162908 Waybill

5/27/22-7:36 AM

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 27MAY22
ACTWGT: 55.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVE
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE
INV:
PO: DEPT:

eurofins | Environment Testing TestAmerica

1966871

FedEx Express

J222022041281uv

FedEx Ship Manager - Print Your Label(s)

280-162908 Waybill

TRK# 0201 7769 7736 1271

TUE - 31 MAY 10:30A
PRIORITY OVERNIGHT

XA LAAA

80002
CO-US DEN

5/27/22 7:36 AM

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-162908-2
SDG Number: AVS Landfill New Wells

Login Number: 162908
List Number: 1
Creator: Kazenga, Oliver M

List Source: Eurofins Denver

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.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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?	False	
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	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163693-1
Laboratory Sample Delivery Group: AVS New Wells
Client Project/Site: CCR Groundwater - ND Sites - AVS New Wells

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
6/30/2022 2:11:03 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

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: 280-163693-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS New Wells

Report Number: 280-163693-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/22/2022 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.4º C.

TOTAL DISSOLVED SOLIDS

Samples MW-24S (280-163693-1), MW-22S (280-163693-2), MW-21S (280-163693-3) and Duplicate (280-163693-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/24/2022.

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

ANIONS (28 DAYS)

Samples MW-24S (280-163693-1), MW-22S (280-163693-2), MW-21S (280-163693-3) and Duplicate (280-163693-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 06/23/2022 and 06/25/2022.

Samples MW-22S (280-163693-2)[5X], MW-21S (280-163693-3)[5X] and Duplicate (280-163693-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

Client Sample ID: MW-24S — Lab Sample ID: 280-163693-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	48.6		3.00		mg/L	1		9056A	Total/NA
Fluoride	6.04		0.500		mg/L	1		9056A	Total/NA
Sulfate	43.7		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1930		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-22S — Lab Sample ID: 280-163693-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.34		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.25		0.500		mg/L	1		9056A	Total/NA
Sulfate	251		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21S — Lab Sample ID: 280-163693-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16.2		3.00		mg/L	1		9056A	Total/NA
Fluoride	5.72		0.500		mg/L	1		9056A	Total/NA
Sulfate	625		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2130		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: Duplicate — Lab Sample ID: 280-163693-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	5.74		0.500		mg/L	1		9056A	Total/NA
Sulfate	629		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2100		40.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163693-1	MW-24S	Water	06/20/22 09:50	06/22/22 10:30
280-163693-2	MW-22S	Water	06/20/22 10:50	06/22/22 10:30
280-163693-3	MW-21S	Water	06/20/22 13:05	06/22/22 10:30
280-163693-4	Duplicate	Water	06/20/22 13:05	06/22/22 10:30

General Chemistry

Client Sample ID: MW-24S
Date Collected: 06/20/22 09:50
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	48.6		3.00		mg/L			06/23/22 17:11	1
Fluoride	6.04		0.500		mg/L			06/25/22 19:51	1
Sulfate	43.7		5.00		mg/L			06/23/22 17:11	1
Total Dissolved Solids (TDS)	1930		20.0		mg/L			06/24/22 10:57	1

Client Sample ID: MW-22S
Date Collected: 06/20/22 10:50
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.34		3.00		mg/L			06/23/22 17:43	1
Fluoride	4.25		0.500		mg/L			06/25/22 20:38	1
Sulfate	251		25.0		mg/L			06/23/22 17:59	5
Total Dissolved Solids (TDS)	1600		20.0		mg/L			06/24/22 10:57	1

Client Sample ID: MW-21S
Date Collected: 06/20/22 13:05
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.2		3.00		mg/L			06/23/22 18:15	1
Fluoride	5.72		0.500		mg/L			06/25/22 20:54	1
Sulfate	625		25.0		mg/L			06/23/22 18:31	5
Total Dissolved Solids (TDS)	2130		40.0		mg/L			06/24/22 10:57	1

Client Sample ID: Duplicate
Date Collected: 06/20/22 13:05
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.1		3.00		mg/L			06/23/22 18:47	1
Fluoride	5.74		0.500		mg/L			06/25/22 21:10	1
Sulfate	629		25.0		mg/L			06/23/22 19:35	5
Total Dissolved Solids (TDS)	2100		40.0		mg/L			06/24/22 10:57	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-578901/6
Matrix: Water
Analysis Batch: 578901

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			06/23/22 11:05	1
Sulfate	ND		5.00		mg/L			06/23/22 11:05	1

Lab Sample ID: LCS 280-578901/4
Matrix: Water
Analysis Batch: 578901

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100.3		mg/L		100	90 - 110
Sulfate	100	99.09		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-578901/5
Matrix: Water
Analysis Batch: 578901

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100.2		mg/L		100	90 - 110	0	10
Sulfate	100	98.98		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-578901/3
Matrix: Water
Analysis Batch: 578901

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.515		mg/L		90	50 - 150
Sulfate	5.00	ND		mg/L		75	50 - 150

Lab Sample ID: MB 280-579126/6
Matrix: Water
Analysis Batch: 579126

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.500		mg/L			06/25/22 14:24	1

Lab Sample ID: LCS 280-579126/4
Matrix: Water
Analysis Batch: 579126

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	4.911		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-579126/5
Matrix: Water
Analysis Batch: 579126

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	4.971		mg/L		99	90 - 110	1	10

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 280-579126/3
Matrix: Water
Analysis Batch: 579126

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride			0.500	ND		mg/L		91	50 - 150		

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

Lab Sample ID: MB 280-579042/1
Matrix: Water
Analysis Batch: 579042

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 (TDS)	ND		10.0		mg/L			06/24/22 10:57	1

Lab Sample ID: LCS 280-579042/2
Matrix: Water
Analysis Batch: 579042

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 (TDS)			503	476.0		mg/L		95	88 - 114		

QC Association Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

General Chemistry

Analysis Batch: 578901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163693-1	MW-24S	Total/NA	Water	9056A	
280-163693-2	MW-22S	Total/NA	Water	9056A	
280-163693-2	MW-22S	Total/NA	Water	9056A	
280-163693-3	MW-21S	Total/NA	Water	9056A	
280-163693-3	MW-21S	Total/NA	Water	9056A	
280-163693-4	Duplicate	Total/NA	Water	9056A	
280-163693-4	Duplicate	Total/NA	Water	9056A	
MB 280-578901/6	Method Blank	Total/NA	Water	9056A	
LCS 280-578901/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-578901/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-578901/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 579042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163693-1	MW-24S	Total/NA	Water	SM 2540C	
280-163693-2	MW-22S	Total/NA	Water	SM 2540C	
280-163693-3	MW-21S	Total/NA	Water	SM 2540C	
280-163693-4	Duplicate	Total/NA	Water	SM 2540C	
MB 280-579042/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-579042/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 579126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163693-1	MW-24S	Total/NA	Water	9056A	
280-163693-2	MW-22S	Total/NA	Water	9056A	
280-163693-3	MW-21S	Total/NA	Water	9056A	
280-163693-4	Duplicate	Total/NA	Water	9056A	
MB 280-579126/6	Method Blank	Total/NA	Water	9056A	
LCS 280-579126/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-579126/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-579126/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

Client Sample ID: MW-24S
Date Collected: 06/20/22 09:50
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	579126	06/25/22 19:51	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578901	06/23/22 17:11	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	579042	06/24/22 10:57	ASP	TAL DEN

Client Sample ID: MW-22S
Date Collected: 06/20/22 10:50
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	579126	06/25/22 20:38	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578901	06/23/22 17:43	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578901	06/23/22 17:59	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	579042	06/24/22 10:57	ASP	TAL DEN

Client Sample ID: MW-21S
Date Collected: 06/20/22 13:05
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	579126	06/25/22 20:54	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578901	06/23/22 18:15	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578901	06/23/22 18:31	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	579042	06/24/22 10:57	ASP	TAL DEN

Client Sample ID: Duplicate
Date Collected: 06/20/22 13:05
Date Received: 06/22/22 10:30

Lab Sample ID: 280-163693-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	579126	06/25/22 21:10	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578901	06/23/22 18:47	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578901	06/23/22 19:35	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	579042	06/24/22 10:57	ASP	TAL DEN

Laboratory References:
TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS New Wells

Job ID: 280-163693-1
SDG: AVS New Wells

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-23

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@ET.EurofinsUS.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:

Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested
City: Stanton	TAT Requested (days): Standard	
State, Zip: ND, 58571	PO #:	
Phone: 701-745-7238(Tel)	WO #:	
Email: aknutson@bepc.com	Project #: 28021258	
Project Name: CCR Groundwater - North Dakota Sites	SSOW#:	
Site: AVS NEW WELLS		

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-24S	6-20-22	0950	G	W				X	X				pH - 7.85
MW-22S	6-20-22	1050	G	W				X	X				pH - 7.87
MW-21S	6-20-22	1305	G	W				X	X				pH - 7.78
Duplicate	6-20-22	1305											

280-163693 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
	6-20-22			6/22/22 1030	EADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 0.3 CF +0.1 IR 12

Ver: 01/16/2019

280-163693 Waybill

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 21JUN22
ACTWGT: 24.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100
INV:
PO: DEPT:

581J2J274FJFE4A

REF: CCR GROUNDWATER - ND SITE

FedEx Express

WED - 22 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7771 8208 2941

XA LAAA

80002
CO-US DEN

eurofins | Environment Testing TestAmerica

1891737

03

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-163693-1
SDG Number: AVS New Wells

Login Number: 163693
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164440-1
Laboratory Sample Delivery Group: AVS Landfill
Client Project/Site: CCR Groundwater - ND Sites - AVS Landfill

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
7/27/2022 11:38:42 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

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: 280-164440-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - ND Sites - AVS Landfill

Report Number: 280-164440-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 7/15/2022 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.9º C.

TOTAL RECOVERABLE METALS
Samples MW-15S (280-164440-1), MW-16S (280-164440-2), MW-17S (280-164440-3), MW-18S (280-164440-4), MW-19S (280-164440-5), MW-20S (280-164440-6) and DUP (280-164440-7) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 07/25/2022 and analyzed on 07/25/2022 and 07/26/2022.

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

TOTAL DISSOLVED SOLIDS
Samples MW-15S (280-164440-1), MW-16S (280-164440-2), MW-17S (280-164440-3), MW-18S (280-164440-4), MW-19S (280-164440-5), MW-20S (280-164440-6) and DUP (280-164440-7) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 07/19/2022.

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

ANIONS (28 DAYS)
Samples MW-15S (280-164440-1), MW-16S (280-164440-2), MW-17S (280-164440-3), MW-18S (280-164440-4), MW-19S (280-164440-5), MW-20S (280-164440-6) and DUP (280-164440-7) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 07/16/2022 and 07/19/2022.

Samples MW-15S (280-164440-1)[5X], MW-17S (280-164440-3)[5X], MW-18S (280-164440-4)[5X], MW-19S (280-164440-5)[5X] and DUP (280-164440-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Client Sample ID: MW-15S — Lab Sample ID: 280-164440-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	147		100		ug/L	1		6010C	Total Recoverable
Calcium	5370		200		ug/L	1		6010C	Total Recoverable
Chloride	10.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.44		0.500		mg/L	1		9056A	Total/NA
Sulfate	402		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1820		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16S — Lab Sample ID: 280-164440-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	188		100		ug/L	1		6010C	Total Recoverable
Calcium	2210		200		ug/L	1		6010C	Total Recoverable
Chloride	20.0		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.72		0.500		mg/L	1		9056A	Total/NA
Sulfate	77.0		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	816		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-17S — Lab Sample ID: 280-164440-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	147		100		ug/L	1		6010C	Total Recoverable
Calcium	3880		200		ug/L	1		6010C	Total Recoverable
Chloride	9.71		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.24		0.500		mg/L	1		9056A	Total/NA
Sulfate	257		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1660		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-18S — Lab Sample ID: 280-164440-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	119		100		ug/L	1		6010C	Total Recoverable
Calcium	4920		200		ug/L	1		6010C	Total Recoverable
Chloride	5.06		3.00		mg/L	1		9056A	Total/NA
Fluoride	3.93		0.500		mg/L	1		9056A	Total/NA
Sulfate	521		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1680		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-19S — Lab Sample ID: 280-164440-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	157		100		ug/L	1		6010C	Total Recoverable
Calcium	3990		200		ug/L	1		6010C	Total Recoverable
Chloride	13.8		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.15		0.500		mg/L	1		9056A	Total/NA
Sulfate	892		25.0		mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Client Sample ID: MW-19S (Continued) — Lab Sample ID: 280-164440-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	2070		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-20S — Lab Sample ID: 280-164440-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	140		100		ug/L	1		6010C	Total Recoverable
Calcium	5250		200		ug/L	1		6010C	Total Recoverable
Chloride	21.6		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.52		0.500		mg/L	1		9056A	Total/NA
Sulfate	78.5		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1790		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-164440-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	151		100		ug/L	1		6010C	Total Recoverable
Calcium	3980		200		ug/L	1		6010C	Total Recoverable
Chloride	14.0		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.15		0.500		mg/L	1		9056A	Total/NA
Sulfate	881		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	45500		1000		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN

Protocol References:

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

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

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164440-1	MW-15S	Water	07/13/22 08:40	07/15/22 09:50
280-164440-2	MW-16S	Water	07/13/22 12:00	07/15/22 09:50
280-164440-3	MW-17S	Water	07/13/22 12:25	07/15/22 09:50
280-164440-4	MW-18S	Water	07/13/22 10:45	07/15/22 09:50
280-164440-5	MW-19S	Water	07/13/22 11:40	07/15/22 09:50
280-164440-6	MW-20S	Water	07/13/22 13:25	07/15/22 09:50
280-164440-7	DUP	Water	07/13/22 11:40	07/15/22 09:50

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-15S
Date Collected: 07/13/22 08:40
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	147		100		ug/L		07/25/22 10:15	07/26/22 10:31	1
Calcium	5370		200		ug/L		07/25/22 10:15	07/25/22 19:52	1

Client Sample ID: MW-16S
Date Collected: 07/13/22 12:00
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	188		100		ug/L		07/25/22 10:15	07/26/22 10:35	1
Calcium	2210		200		ug/L		07/25/22 10:15	07/25/22 19:56	1

Client Sample ID: MW-17S
Date Collected: 07/13/22 12:25
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	147		100		ug/L		07/25/22 10:15	07/26/22 10:39	1
Calcium	3880		200		ug/L		07/25/22 10:15	07/25/22 20:00	1

Client Sample ID: MW-18S
Date Collected: 07/13/22 10:45
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	119		100		ug/L		07/25/22 10:15	07/26/22 10:43	1
Calcium	4920		200		ug/L		07/25/22 10:15	07/25/22 20:04	1

Client Sample ID: MW-19S
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	157		100		ug/L		07/25/22 10:15	07/26/22 10:47	1
Calcium	3990		200		ug/L		07/25/22 10:15	07/25/22 20:08	1

Client Sample ID: MW-20S
Date Collected: 07/13/22 13:25
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	140		100		ug/L		07/25/22 10:15	07/26/22 10:51	1
Calcium	5250		200		ug/L		07/25/22 10:15	07/25/22 20:12	1

Client Sample ID: DUP
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50
Lab Sample ID: 280-164440-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	151		100		ug/L		07/25/22 10:15	07/26/22 10:55	1
Calcium	3980		200		ug/L		07/25/22 10:15	07/25/22 20:16	1

General Chemistry

Client Sample ID: MW-15S
Date Collected: 07/13/22 08:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.4		3.00		mg/L			07/16/22 18:24	1
Fluoride	4.44		0.500		mg/L			07/16/22 18:24	1
Sulfate	402		25.0		mg/L			07/16/22 18:39	5
Total Dissolved Solids (TDS)	1820		20.0		mg/L			07/19/22 10:32	1

Client Sample ID: MW-16S
Date Collected: 07/13/22 12:00
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.0		3.00		mg/L			07/16/22 18:55	1
Fluoride	1.72		0.500		mg/L			07/16/22 18:55	1
Sulfate	77.0		5.00		mg/L			07/16/22 18:55	1
Total Dissolved Solids (TDS)	816		20.0		mg/L			07/19/22 10:31	1

Client Sample ID: MW-17S
Date Collected: 07/13/22 12:25
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.71		3.00		mg/L			07/16/22 19:43	1
Fluoride	4.24		0.500		mg/L			07/16/22 19:43	1
Sulfate	257		25.0		mg/L			07/19/22 04:07	5
Total Dissolved Solids (TDS)	1660		20.0		mg/L			07/19/22 10:31	1

Client Sample ID: MW-18S
Date Collected: 07/13/22 10:45
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.06		3.00		mg/L			07/16/22 19:59	1
Fluoride	3.93		0.500		mg/L			07/16/22 19:59	1
Sulfate	521		25.0		mg/L			07/16/22 20:14	5
Total Dissolved Solids (TDS)	1680		20.0		mg/L			07/19/22 10:32	1

Client Sample ID: MW-19S
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.8		3.00		mg/L			07/16/22 20:30	1
Fluoride	4.15		0.500		mg/L			07/16/22 20:30	1
Sulfate	892		25.0		mg/L			07/16/22 20:46	5
Total Dissolved Solids (TDS)	2070		20.0		mg/L			07/19/22 10:32	1

Client Sample ID: MW-20S
Date Collected: 07/13/22 13:25
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21.6		3.00		mg/L			07/16/22 21:02	1
Fluoride	4.52		0.500		mg/L			07/16/22 21:02	1
Sulfate	78.5		5.00		mg/L			07/16/22 21:02	1
Total Dissolved Solids (TDS)	1790		20.0		mg/L			07/19/22 10:32	1

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

General Chemistry

Client Sample ID: DUP
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.0		3.00		mg/L			07/16/22 21:18	1
Fluoride	4.15		0.500		mg/L			07/16/22 21:18	1
Sulfate	881		25.0		mg/L			07/16/22 21:34	5
Total Dissolved Solids (TDS)	45500		1000		mg/L			07/19/22 10:32	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-581778/1-A
Matrix: Water
Analysis Batch: 581905

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 581778

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		07/25/22 10:15	07/25/22 18:11	1
Calcium	ND		200		ug/L		07/25/22 10:15	07/25/22 18:11	1

Lab Sample ID: LCS 280-581778/2-A
Matrix: Water
Analysis Batch: 581905

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 581778

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1929		ug/L		96	86 - 110
Calcium	50000	48990		ug/L		98	90 - 111

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-581039/6
Matrix: Water
Analysis Batch: 581039

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			07/16/22 14:56	1
Fluoride	ND		0.500		mg/L			07/16/22 14:56	1
Sulfate	ND		5.00		mg/L			07/16/22 14:56	1

Lab Sample ID: LCS 280-581039/4
Matrix: Water
Analysis Batch: 581039

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.30		mg/L		97	90 - 110
Fluoride	5.00	4.840		mg/L		97	90 - 110
Sulfate	100	104.9		mg/L		105	90 - 110

Lab Sample ID: LCSD 280-581039/5
Matrix: Water
Analysis Batch: 581039

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	97.43		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.865		mg/L		97	90 - 110	0	10
Sulfate	100	105.0		mg/L		105	90 - 110	0	10

Lab Sample ID: MRL 280-581039/3
Matrix: Water
Analysis Batch: 581039

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.221		mg/L		64	50 - 150
Fluoride	0.500	0.5809		mg/L		116	50 - 150
Sulfate	5.00	ND		mg/L		71	50 - 150

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 280-581081/44
Matrix: Water
Analysis Batch: 581081

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.00		mg/L			07/19/22 00:57	1

Lab Sample ID: LCS 280-581081/40
Matrix: Water
Analysis Batch: 581081

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102.3		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-581081/43
Matrix: Water
Analysis Batch: 581081

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102.0		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-581081/3
Matrix: Water
Analysis Batch: 581081

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	ND		mg/L		73	50 - 150

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

Lab Sample ID: MB 280-581227/1
Matrix: Water
Analysis Batch: 581227

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 (TDS)	ND		10.0		mg/L			07/19/22 10:31	1

Lab Sample ID: LCS 280-581227/2
Matrix: Water
Analysis Batch: 581227

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 (TDS)	502	480.0		mg/L		96	88 - 114

Lab Sample ID: MB 280-581229/1
Matrix: Water
Analysis Batch: 581229

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 (TDS)	ND		10.0		mg/L			07/19/22 10:32	1

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

Lab Sample ID: LCS 280-581229/2
Matrix: Water
Analysis Batch: 581229

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 (TDS)			502	481.0		mg/L		96	88 - 114		

Lab Sample ID: LCSD 280-581229/3
Matrix: Water
Analysis Batch: 581229

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			502	483.0		mg/L		96	88 - 114	0	20

Metals

Prep Batch: 581778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-1	MW-15S	Total Recoverable	Water	3005A	
280-164440-2	MW-16S	Total Recoverable	Water	3005A	
280-164440-3	MW-17S	Total Recoverable	Water	3005A	
280-164440-4	MW-18S	Total Recoverable	Water	3005A	
280-164440-5	MW-19S	Total Recoverable	Water	3005A	
280-164440-6	MW-20S	Total Recoverable	Water	3005A	
280-164440-7	DUP	Total Recoverable	Water	3005A	
MB 280-581778/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581778/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 581905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-1	MW-15S	Total Recoverable	Water	6010C	581778
280-164440-2	MW-16S	Total Recoverable	Water	6010C	581778
280-164440-3	MW-17S	Total Recoverable	Water	6010C	581778
280-164440-4	MW-18S	Total Recoverable	Water	6010C	581778
280-164440-5	MW-19S	Total Recoverable	Water	6010C	581778
280-164440-6	MW-20S	Total Recoverable	Water	6010C	581778
280-164440-7	DUP	Total Recoverable	Water	6010C	581778
MB 280-581778/1-A	Method Blank	Total Recoverable	Water	6010C	581778
LCS 280-581778/2-A	Lab Control Sample	Total Recoverable	Water	6010C	581778

Analysis Batch: 581983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-1	MW-15S	Total Recoverable	Water	6010C	581778
280-164440-2	MW-16S	Total Recoverable	Water	6010C	581778
280-164440-3	MW-17S	Total Recoverable	Water	6010C	581778
280-164440-4	MW-18S	Total Recoverable	Water	6010C	581778
280-164440-5	MW-19S	Total Recoverable	Water	6010C	581778
280-164440-6	MW-20S	Total Recoverable	Water	6010C	581778
280-164440-7	DUP	Total Recoverable	Water	6010C	581778

General Chemistry

Analysis Batch: 581039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-1	MW-15S	Total/NA	Water	9056A	
280-164440-1	MW-15S	Total/NA	Water	9056A	
280-164440-2	MW-16S	Total/NA	Water	9056A	
280-164440-3	MW-17S	Total/NA	Water	9056A	
280-164440-4	MW-18S	Total/NA	Water	9056A	
280-164440-4	MW-18S	Total/NA	Water	9056A	
280-164440-5	MW-19S	Total/NA	Water	9056A	
280-164440-5	MW-19S	Total/NA	Water	9056A	
280-164440-6	MW-20S	Total/NA	Water	9056A	
280-164440-7	DUP	Total/NA	Water	9056A	
280-164440-7	DUP	Total/NA	Water	9056A	
MB 280-581039/6	Method Blank	Total/NA	Water	9056A	
LCS 280-581039/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581039/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581039/3	Lab Control Sample	Total/NA	Water	9056A	

General Chemistry

Analysis Batch: 581081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-3	MW-17S	Total/NA	Water	9056A	
MB 280-581081/44	Method Blank	Total/NA	Water	9056A	
LCS 280-581081/40	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581081/43	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581081/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-2	MW-16S	Total/NA	Water	SM 2540C	
280-164440-3	MW-17S	Total/NA	Water	SM 2540C	
MB 280-581227/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581227/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 581229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164440-1	MW-15S	Total/NA	Water	SM 2540C	
280-164440-4	MW-18S	Total/NA	Water	SM 2540C	
280-164440-5	MW-19S	Total/NA	Water	SM 2540C	
280-164440-6	MW-20S	Total/NA	Water	SM 2540C	
280-164440-7	DUP	Total/NA	Water	SM 2540C	
MB 280-581229/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581229/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-581229/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Client Sample ID: MW-15S
Date Collected: 07/13/22 08:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 19:52	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:31	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 18:24	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581039	07/16/22 18:39	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN

Client Sample ID: MW-16S
Date Collected: 07/13/22 12:00
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 19:56	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:35	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 18:55	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581227	07/19/22 10:31	ASP	TAL DEN

Client Sample ID: MW-17S
Date Collected: 07/13/22 12:25
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 20:00	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:39	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 19:43	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581081	07/19/22 04:07	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581227	07/19/22 10:31	ASP	TAL DEN

Client Sample ID: MW-18S
Date Collected: 07/13/22 10:45
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 20:04	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:43	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 19:59	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581039	07/16/22 20:14	MEC	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Client Sample ID: MW-18S
Date Collected: 07/13/22 10:45
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN

Client Sample ID: MW-19S
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 20:08	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:47	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 20:30	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581039	07/16/22 20:46	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN

Client Sample ID: MW-20S
Date Collected: 07/13/22 13:25
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 20:12	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:51	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 21:02	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN

Client Sample ID: DUP
Date Collected: 07/13/22 11:40
Date Received: 07/15/22 09:50

Lab Sample ID: 280-164440-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581905	07/25/22 20:16	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581778	07/25/22 10:15	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581983	07/26/22 10:55	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581039	07/16/22 21:18	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581039	07/16/22 21:34	MEC	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN

Laboratory References:
TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - AVS Landfill

Job ID: 280-164440-1
SDG: AVS Landfill

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-23

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

280-164440 Chain of Custody

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7/27/2022

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	COC No:
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com	Page: 1 of 1
Company: Basin Electric Power Cooperative			Job #:
Address: 3901 Highway 200A	Due Date Requested:		
City: Stanton	TAT Requested (days): Standard		
State, Zip: ND, 58571			
Phone: 701-745-7238(Tel)	PO #: Purchase Order Requested		
Email: aknutson@bepc.com	WO #:		
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258		
Site: AVS LANDFILL	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-15S	7-13-22	0840	G	W	N		X	X	X				pH - 8.29
MW-16S	7-13-22	1200	G	W	N		X	X	X				pH - ~~8.44~~ AK 8.14
MW-17S	7-13-22	1225	G	W	N		X	X	X				pH - 7.92
MW-18S	7-13-22	1045	G	W	N		X	X	X				pH - 9.02
MW-19S	7-13-22	1140	G	W	N		X	X	X				pH - 8.08
MW-20S	7-13-22	1325	G	W	N		X	X	X				pH - 7.96
DUP	7-13-22	1140	G	W	N		X	X	X				pH - 8.14

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: 7-14-22 0730	Company	Received by:	Date/Time: 7/15/22 0950	Company EHADV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.8 IR CF401

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-164440-1
SDG Number: AVS Landfill

Login Number: 164440
List Number: 1
Creator: Turner, Shelby R

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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	

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ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164684-1
Laboratory Sample Delivery Group: AVS NEW WELLS
Client Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
8/23/2022 3:08:05 PM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Qualifiers

Rad

Qualifier	Qualifier Description
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: 280-164684-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - NDS - AVS NEW WELLS

Report Number: 280-164684-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

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.

RECEIPT

The samples were received on 7/21/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.7º C.

RADIUM-226 (GFPC)

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 08/01/2022 and analyzed on 08/19/2022.

The following samples were prepared at a reduced aliquot due to Matrix: MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4). It can be noted that insufficient sample volume was available to perform a sample duplicate. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

RADIUM-228

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/01/2022 and analyzed on 08/11/2022.

The detection goal was not met for the following samples: MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4). The samples were prepped at a reduced volume due to the presence of matrix interferences. Analytical results are reported with the detection limit achieved.

The following samples were prepared at a reduced aliquot due to Matrix: MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4). It can be noted that insufficient sample volume was available to perform a sample duplicate. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Job ID: 280-164684-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 08/23/2022.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Client Sample ID: MW-24S — Lab Sample ID: 280-164684-1

No Detections.

Client Sample ID: MW-21S — Lab Sample ID: 280-164684-2

No Detections.

Client Sample ID: MW-22S — Lab Sample ID: 280-164684-3

No Detections.

Client Sample ID: DUP — Lab Sample ID: 280-164684-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164684-1	MW-24S	Water	07/19/22 09:20	07/21/22 09:30
280-164684-2	MW-21S	Water	07/19/22 10:50	07/21/22 09:30
280-164684-3	MW-22S	Water	07/19/22 12:45	07/21/22 09:30
280-164684-4	DUP	Water	07/19/22 12:45	07/21/22 09:30

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.287	U	0.251	0.252	1.00	0.372	pCi/L	08/01/22 08:32	08/19/22 13:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.0*		*40 - 110*	*08/01/22 08:32*	*08/19/22 13:36*	*1*

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0470	U	0.274	0.274	1.00	0.570	pCi/L	08/01/22 08:32	08/19/22 13:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.8*		*40 - 110*	*08/01/22 08:32*	*08/19/22 13:36*	*1*

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.133	U	0.234	0.234	1.00	0.417	pCi/L	08/01/22 08:32	08/19/22 13:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*08/01/22 08:32*	*08/19/22 13:37*	*1*

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.202	U	0.143	0.145	1.00	0.431	pCi/L	08/01/22 08:32	08/19/22 13:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*08/01/22 08:32*	*08/19/22 13:47*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.767	U G	1.13	1.13	1.00	1.90	pCi/L	08/01/22 08:40	08/11/22 11:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.0*		*40 - 110*	*08/01/22 08:40*	*08/11/22 11:24*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	81.9		40 - 110	08/01/22 08:40	08/11/22 11:24	1

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.31	U G	1.37	1.37	1.00	2.21	pCi/L	08/01/22 08:40	08/11/22 11:24	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110	08/01/22 08:40	08/11/22 11:24	1
Y Carrier	89.0		40 - 110	08/01/22 08:40	08/11/22 11:24	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.23	U G	1.08	1.08	1.00	1.69	pCi/L	08/01/22 08:40	08/11/22 11:24	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	08/01/22 08:40	08/11/22 11:24	1
Y Carrier	91.6		40 - 110	08/01/22 08:40	08/11/22 11:24	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.51	U G	1.27	1.27	1.00	1.99	pCi/L	08/01/22 08:40	08/11/22 11:24	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	08/01/22 08:40	08/11/22 11:24	1
Y Carrier	88.6		40 - 110	08/01/22 08:40	08/11/22 11:24	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.05	U	1.16	1.16	5.00	1.90	pCi/L		08/23/22 11:21	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.26	U	1.40	1.40	5.00	2.21	pCi/L		08/23/22 11:21	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.37	U	1.11	1.11	5.00	1.69	pCi/L		08/23/22 11:21	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.31	U	1.28	1.28	5.00	1.99	pCi/L		08/23/22 11:21	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-575921/1-A
Matrix: Water
Analysis Batch: 578688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575921

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0008323	U	0.0462	0.0462	1.00	0.101	pCi/L	08/01/22 08:32	08/19/22 08:13	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*08/01/22 08:32*	*08/19/22 08:13*	*1*

Lab Sample ID: LCS 160-575921/2-A
Matrix: Water
Analysis Batch: 578736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575921

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	9.876		1.03	1.00	0.105	pCi/L	87	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Lab Sample ID: LCSD 160-575921/3-A
Matrix: Water
Analysis Batch: 578736

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 575921

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	9.619		1.01	1.00	0.105	pCi/L	85	75 - 125	0.13	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-575922/1-A
Matrix: Water
Analysis Batch: 577587

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575922

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05175	U	0.251	0.251	1.00	0.455	pCi/L	08/01/22 08:40	08/11/22 11:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*08/01/22 08:40*	*08/11/22 11:09*	*1*
Y Carrier	*85.2*		*40 - 110*	*08/01/22 08:40*	*08/11/22 11:09*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-575922/2-A
Matrix: Water
Analysis Batch: 577587

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575922

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.37	8.277		1.13	1.00	0.492	pCi/L	99	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Lab Sample ID: LCSD 160-575922/3-A
Matrix: Water
Analysis Batch: 577587

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 575922

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.37	7.979		1.09	1.00	0.446	pCi/L	95	75 - 125	0.13	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*86.4*		*40 - 110*

Rad

Prep Batch: 575921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	PrecSep-21	
280-164684-2	MW-21S	Total/NA	Water	PrecSep-21	
280-164684-3	MW-22S	Total/NA	Water	PrecSep-21	
280-164684-4	DUP	Total/NA	Water	PrecSep-21	
MB 160-575921/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-575921/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-575921/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 575922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	PrecSep_0	
280-164684-2	MW-21S	Total/NA	Water	PrecSep_0	
280-164684-3	MW-22S	Total/NA	Water	PrecSep_0	
280-164684-4	DUP	Total/NA	Water	PrecSep_0	
MB 160-575922/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-575922/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-575922/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			256.13 mL	1.0 g	575921	08/01/22 08:32	MS	EET SL
Total/NA	Analysis	9315		1			578688	08/19/22 13:36	FLC	EET SL
Total/NA	Prep	PrecSep_0			256.13 mL	1.0 g	575922	08/01/22 08:40	MS	EET SL
Total/NA	Analysis	9320		1			577571	08/11/22 11:24	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			579070	08/23/22 11:21	EMH	EET SL

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			246.19 mL	1.0 g	575921	08/01/22 08:32	MS	EET SL
Total/NA	Analysis	9315		1			578688	08/19/22 13:36	FLC	EET SL
Total/NA	Prep	PrecSep_0			246.19 mL	1.0 g	575922	08/01/22 08:40	MS	EET SL
Total/NA	Analysis	9320		1			577571	08/11/22 11:24	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			579070	08/23/22 11:21	EMH	EET SL

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			246.85 mL	1.0 g	575921	08/01/22 08:32	MS	EET SL
Total/NA	Analysis	9315		1			578688	08/19/22 13:37	FLC	EET SL
Total/NA	Prep	PrecSep_0			246.85 mL	1.0 g	575922	08/01/22 08:40	MS	EET SL
Total/NA	Analysis	9320		1			577571	08/11/22 11:24	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			579070	08/23/22 11:21	EMH	EET SL

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			246.74 mL	1.0 g	575921	08/01/22 08:32	MS	EET SL
Total/NA	Analysis	9315		1			578736	08/19/22 13:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			246.74 mL	1.0 g	575922	08/01/22 08:40	MS	EET SL
Total/NA	Analysis	9320		1			577571	08/11/22 11:24	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			579070	08/23/22 11:21	EMH	EET SL

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-164684-1
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS
SDG: AVS NEW WELLS

Laboratory: Eurofins 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	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@ET.EurofinsUS.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:
Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested		
City: Stanton	TAT Requested (days): Standard			
State, Zip: ND, 58571				
Phone: 701-745-7238(Tel)	PO #:			
Email: aknutson@bepc.com	WO #:			
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258			
Site: AVS NEW WELLS	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, 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)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-245	7-19-22	0920	G	W	N		X	X	X	X	X		pH - 8.15
MW-215	7-19-22	1050	G	W	N		X	X	X	X	X		pH - 8.08
MW-225	7-19-22	1245	G	W	N		X	X	X	X	X		pH - 8.25
DUP	7-19-22	1245	G	W	N		X	X	X	X	X		pH - 8.25

280-164684 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological	☐ 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
	7-20-22			7/21/22 0930	EHADA
Relinquished by	Date/Time	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.6 KLS CF#0.1

Ver: 01/16/2019

8/23/2022

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 20JUL22
ACTWGT: 61.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE

INV:
PO:

DEPT:

581J20A92/FE4A

FedEx Express

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7774 3383 0074

XA LAAA

80002
CO-US DEN

Custody Seal
DATE 7-20-22
SIGNATURE

Eurofins | Environment Testing TestAmerica

189145

280-164684 Waybill

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No: 280-622902.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shelby.Turner@et.eurofinsus.com	State of Origin: North Dakota	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - North Dakota		Job #: 280-164684-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 8/22/2022			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR Groundwater - NDS - AVS NEW WELLS	Project #: 28021258			
Site:	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, Y - Trizma, 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)	9315_Ra226/PrecSep_21 Radium-226	9320_Ra228/PrecSep_0 Radium-228	Ra226Ra228_GFPC/ Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-24S (280-164684-1)	7/19/22	09:20 Central		Water			X	X	X	2	
MW-21S (280-164684-2)	7/19/22	10:50 Central		Water			X	X	X	2	
MW-22S (280-164684-3)	7/19/22	12:45 Central		Water			X	X	X	2	
DUP (280-164684-4)	7/19/22	12:45 Central		Water			X	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
1	[signature]	7/22/22 1515	ETAS	FED EX		
2	Relinquished by: FED EX	Date/Time:	Company	Received by: Jina Worthington	Date/Time: JUL 25 2022 0800	Company GAEL
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: 06/08/2021

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-164684-1
SDG Number: AVS NEW WELLS

Login Number: 164684
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-164684-1
SDG Number: AVS NEW WELLS

Login Number: 164684
List Number: 2
Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis
List Creation: 07/25/22 10:45 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	

Tracer/Carrier Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
SDG: AVS NEW WELLS

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-164684-1	MW-24S	99.0
280-164684-2	MW-21S	81.8
280-164684-3	MW-22S	101
280-164684-4	DUP	101
LCS 160-575921/2-A	Lab Control Sample	103
LCSD 160-575921/3-A	Lab Control Sample Dup	101
MB 160-575921/1-A	Method Blank	104

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - 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)
280-164684-1	MW-24S	99.0	81.9
280-164684-2	MW-21S	81.8	89.0
280-164684-3	MW-22S	101	91.6
280-164684-4	DUP	101	88.6
LCS 160-575922/2-A	Lab Control Sample	103	87.5
LCSD 160-575922/3-A	Lab Control Sample Dup	101	86.4
MB 160-575922/1-A	Method Blank	104	85.2

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164684-2
Laboratory Sample Delivery Group: AVS NEW WELLS
Client Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

For:
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, North Dakota 58504

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
8/5/2022 10:45:47 AM

Shelby Turner, Project Manager I
(303)736-0100
Shelby.Turner@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.

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: 280-164684-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: Basin Electric Power Cooperative

Project: CCR Groundwater - NDS - AVS NEW WELLS

Report Number: 280-164684-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/21/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.7º C.

TOTAL RECOVERABLE METALS

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/01/2022 and analyzed on 08/02/2022 and 08/03/2022.

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

TOTAL METALS (ICPMS)

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 6020A. The samples were prepared on 07/25/2022 and analyzed on 07/26/2022.

The interference check standard solution (ICSA) associated with batch 280-581901 had results for one or more elements at a level greater than 2x the RL. The ICSA result (3.097 ppb) was >2x RL (1 ppb) for Barium. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The continuing calibration verification (CCV) associated with batch 280-581979 recovered (118%) above the upper control limit (110%) for Beryllium. The MB and LCS associated with this CCV were within control for the affected analyte; therefore, the data has been reported. The associated samples are impacted: (CCV 280-581979/37), (LCS 280-581812/2-A) and (MB 280-581812/1-A).

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

TOTAL MERCURY

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 07/27/2022 and analyzed on 07/28/2022.

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

TOTAL DISSOLVED SOLIDS

Job ID: 280-164684-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 07/22/2022.

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

ANIONS (28 DAYS)

Samples MW-24S (280-164684-1), MW-21S (280-164684-2), MW-22S (280-164684-3) and DUP (280-164684-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 07/24/2022 and 07/27/2022.

Samples MW-21S (280-164684-2)[10X], MW-22S (280-164684-3)[10X] and DUP (280-164684-4)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Client Sample ID: MW-24S — Lab Sample ID: 280-164684-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	123		100		ug/L	1		6010C	Total Recoverable
Calcium	4710		200		ug/L	1		6010C	Total Recoverable
Lithium	58.8		20.0		ug/L	1		6010C	Total Recoverable
Barium	79.4	^6+	1.00		ug/L	1		6020A	Total/NA
Chromium	2.99		2.00		ug/L	1		6020A	Total/NA
Cobalt	1.45		1.00		ug/L	1		6020A	Total/NA
Molybdenum	9.16		2.00		ug/L	1		6020A	Total/NA
Chloride	49.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.90		0.500		mg/L	1		9056A	Total/NA
Sulfate	44.0		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1960		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21S — Lab Sample ID: 280-164684-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	136		100		ug/L	1		6010C	Total Recoverable
Calcium	4710		200		ug/L	1		6010C	Total Recoverable
Lithium	49.9		20.0		ug/L	1		6010C	Total Recoverable
Barium	45.5	^6+	1.00		ug/L	1		6020A	Total/NA
Chloride	16.1		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.97		0.500		mg/L	1		9056A	Total/NA
Sulfate	624		50.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2170		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-22S — Lab Sample ID: 280-164684-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	141		100		ug/L	1		6010C	Total Recoverable
Calcium	2590		200		ug/L	1		6010C	Total Recoverable
Lithium	49.9		20.0		ug/L	1		6010C	Total Recoverable
Barium	59.8	^6+	1.00		ug/L	1		6020A	Total/NA
Chloride	9.32		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.01		0.500		mg/L	1		9056A	Total/NA
Sulfate	253		50.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1580		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-164684-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	143		100		ug/L	1		6010C	Total Recoverable
Calcium	2500		200		ug/L	1		6010C	Total Recoverable
Lithium	46.6		20.0		ug/L	1		6010C	Total Recoverable
Barium	59.7	^6+	1.00		ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: DUP (Continued)

Lab Sample ID: 280-164684-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.34		3.00		mg/L	1		9056A	Total/NA
Fluoride	4.04		0.500		mg/L	1		9056A	Total/NA
Sulfate	251		50.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1430		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	ETA DEN
6020A	Metals (ICP/MS)	SW846	ETA DEN
7470A	Mercury (CVAA)	SW846	ETA DEN
9056A	Anions, Ion Chromatography	SW846	ETA DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	ETA DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ETA DEN
3020A	Preparation, Total Metals	SW846	ETA DEN
7470A	Preparation, Mercury	SW846	ETA DEN

Protocol References:

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

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

Laboratory References:

ETA DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164684-1	MW-24S	Water	07/19/22 09:20	07/21/22 09:30
280-164684-2	MW-21S	Water	07/19/22 10:50	07/21/22 09:30
280-164684-3	MW-22S	Water	07/19/22 12:45	07/21/22 09:30
280-164684-4	DUP	Water	07/19/22 12:45	07/21/22 09:30

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**123**		100		ug/L		08/01/22 14:47	08/02/22 13:26	1
Calcium	**4710**		200		ug/L		08/01/22 14:47	08/02/22 13:26	1
Lithium	**58.8**		20.0		ug/L		08/01/22 14:47	08/03/22 15:13	1

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**136**		100		ug/L		08/01/22 14:47	08/02/22 13:30	1
Calcium	**4710**		200		ug/L		08/01/22 14:47	08/02/22 13:30	1
Lithium	**49.9**		20.0		ug/L		08/01/22 14:47	08/03/22 15:17	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**141**		100		ug/L		08/01/22 14:47	08/02/22 13:34	1
Calcium	**2590**		200		ug/L		08/01/22 14:47	08/02/22 13:34	1
Lithium	**49.9**		20.0		ug/L		08/01/22 14:47	08/03/22 15:21	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**143**		100		ug/L		08/01/22 14:47	08/02/22 13:38	1
Calcium	**2500**		200		ug/L		08/01/22 14:47	08/02/22 13:38	1
Lithium	**46.6**		20.0		ug/L		08/01/22 14:47	08/03/22 15:25	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Arsenic	ND		5.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Barium	**79.4**	**^6+**	1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Beryllium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Cadmium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Chromium	**2.99**		2.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Cobalt	**1.45**		1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Lead	ND		1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Molybdenum	**9.16**		2.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Selenium	ND		5.00		ug/L		07/25/22 14:32	07/26/22 00:59	1
Thallium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 00:59	1

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:03	1

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

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Barium	**45.5**	**^6+**	1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Beryllium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Cadmium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Chromium	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Cobalt	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Lead	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Molybdenum	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Selenium	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:03	1
Thallium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:03	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Arsenic	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Barium	**59.8**	**^6+**	1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Beryllium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Cadmium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Chromium	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Cobalt	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Lead	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Molybdenum	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Selenium	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:07	1
Thallium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:07	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Arsenic	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Barium	**59.7**	**^6+**	1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Beryllium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Cadmium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Chromium	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Cobalt	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Lead	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Molybdenum	ND		2.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Selenium	ND		5.00		ug/L		07/25/22 14:32	07/26/22 01:11	1
Thallium	ND		1.00		ug/L		07/25/22 14:32	07/26/22 01:11	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		07/27/22 22:57	07/28/22 19:42	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		07/27/22 22:57	07/28/22 19:44	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		07/27/22 22:57	07/28/22 19:52	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		07/27/22 22:57	07/28/22 19:54	1

General Chemistry

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.4		3.00		mg/L			07/27/22 14:00	1
Fluoride	4.90		0.500		mg/L			07/24/22 10:09	1
Sulfate	44.0		5.00		mg/L			07/27/22 14:00	1
Total Dissolved Solids (TDS)	1960		20.0		mg/L			07/22/22 10:34	1

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.1		3.00		mg/L			07/27/22 14:16	1
Fluoride	4.97		0.500		mg/L			07/24/22 10:24	1
Sulfate	624		50.0		mg/L			07/27/22 14:32	10
Total Dissolved Solids (TDS)	2170		20.0		mg/L			07/22/22 10:34	1

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.32		3.00		mg/L			07/27/22 14:48	1
Fluoride	4.01		0.500		mg/L			07/24/22 11:12	1
Sulfate	253		50.0		mg/L			07/27/22 15:04	10
Total Dissolved Solids (TDS)	1580		20.0		mg/L			07/22/22 10:34	1

Client Sample ID: DUP
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30
Lab Sample ID: 280-164684-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.34		3.00		mg/L			07/27/22 15:20	1
Fluoride	4.04		0.500		mg/L			07/24/22 11:28	1
Sulfate	251		50.0		mg/L			07/27/22 15:36	10
Total Dissolved Solids (TDS)	1430		20.0		mg/L			07/22/22 10:34	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-582392/1-A
Matrix: Water
Analysis Batch: 582755

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 582392

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		08/01/22 14:47	08/02/22 12:30	1
Calcium	ND		200		ug/L		08/01/22 14:47	08/02/22 12:30	1

Lab Sample ID: MB 280-582392/1-A
Matrix: Water
Analysis Batch: 582969

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 582392

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		20.0		ug/L		08/01/22 14:47	08/03/22 14:48	1

Lab Sample ID: LCS 280-582392/2-A
Matrix: Water
Analysis Batch: 582755

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 582392

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1992		ug/L		100	86 - 110
Calcium	50000	48500		ug/L		97	90 - 111

Lab Sample ID: LCS 280-582392/2-A
Matrix: Water
Analysis Batch: 582969

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 582392

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1000	964.8		ug/L		96	90 - 112

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-581812/1-A
Matrix: Water
Analysis Batch: 581901

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 581812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Arsenic	ND		5.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Barium	ND	^6+	1.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Cadmium	ND		1.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Chromium	ND		2.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Cobalt	ND		1.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Lead	ND		1.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Molybdenum	ND		2.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Selenium	ND		5.00		ug/L		07/25/22 14:32	07/25/22 23:26	1
Thallium	ND		1.00		ug/L		07/25/22 14:32	07/25/22 23:26	1

Lab Sample ID: LCS 280-581812/2-A
Matrix: Water
Analysis Batch: 581901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 581812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	39.48		ug/L		99	85 - 115
Arsenic	40.0	41.49		ug/L		104	85 - 117

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

Lab Sample ID: LCS 280-581812/2-A
Matrix: Water
Analysis Batch: 581901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 581812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	40.67	^6+	ug/L		102	85 - 118
Cadmium	40.0	38.56		ug/L		96	85 - 115
Chromium	40.0	41.31		ug/L		103	84 - 121
Cobalt	40.0	39.54		ug/L		99	85 - 120
Lead	40.0	39.75		ug/L		99	85 - 118
Molybdenum	40.0	39.56		ug/L		99	85 - 119
Selenium	40.0	41.15		ug/L		103	77 - 122
Thallium	40.0	39.69		ug/L		99	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-582155/1-A
Matrix: Water
Analysis Batch: 582387

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582155

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		07/27/22 22:57	07/28/22 19:21	1

Lab Sample ID: LCS 280-582155/2-A
Matrix: Water
Analysis Batch: 582387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582155

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.005004		mg/L		100	84 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-581758/13
Matrix: Water
Analysis Batch: 581758

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.500		mg/L			07/23/22 16:42	1

Lab Sample ID: MB 280-581758/45
Matrix: Water
Analysis Batch: 581758

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.500		mg/L			07/24/22 03:32	1

Lab Sample ID: LCS 280-581758/43
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	5.284		mg/L		106	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-581758/44
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	5.279		mg/L		106	90 - 110	0	10

Lab Sample ID: MRL 280-581758/10
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.6065		mg/L		121	50 - 150

Lab Sample ID: MB 280-582062/6
Matrix: Water
Analysis Batch: 582062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			07/27/22 11:14	1
Sulfate	ND		5.00		mg/L			07/27/22 11:14	1

Lab Sample ID: LCS 280-582062/4
Matrix: Water
Analysis Batch: 582062

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100.5		mg/L		100	90 - 110
Sulfate	100	100.5		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-582062/5
Matrix: Water
Analysis Batch: 582062

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100.4		mg/L		100	90 - 110	0	10
Sulfate	100	100.5		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-582062/3
Matrix: Water
Analysis Batch: 582062

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.647		mg/L		93	50 - 150
Sulfate	5.00	ND		mg/L		87	50 - 150

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

Lab Sample ID: MB 280-581655/1
Matrix: Water
Analysis Batch: 581655

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 (TDS)	ND		10.0		mg/L			07/22/22 10:34	1

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

Lab Sample ID: LCS 280-581655/2
Matrix: Water
Analysis Batch: 581655

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 (TDS)			500	480.0		mg/L		96	88 - 114		

Lab Sample ID: LCSD 280-581655/3
Matrix: Water
Analysis Batch: 581655

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			500	475.0		mg/L		95	88 - 114	1	20

Metals

Prep Batch: 581812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	3020A	
280-164684-2	MW-21S	Total/NA	Water	3020A	
280-164684-3	MW-22S	Total/NA	Water	3020A	
280-164684-4	DUP	Total/NA	Water	3020A	
MB 280-581812/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-581812/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 581901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	6020A	581812
280-164684-2	MW-21S	Total/NA	Water	6020A	581812
280-164684-3	MW-22S	Total/NA	Water	6020A	581812
280-164684-4	DUP	Total/NA	Water	6020A	581812
MB 280-581812/1-A	Method Blank	Total/NA	Water	6020A	581812
LCS 280-581812/2-A	Lab Control Sample	Total/NA	Water	6020A	581812

Prep Batch: 582155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	7470A	
280-164684-2	MW-21S	Total/NA	Water	7470A	
280-164684-3	MW-22S	Total/NA	Water	7470A	
280-164684-4	DUP	Total/NA	Water	7470A	
MB 280-582155/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-582155/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 582387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	7470A	582155
280-164684-2	MW-21S	Total/NA	Water	7470A	582155
280-164684-3	MW-22S	Total/NA	Water	7470A	582155
280-164684-4	DUP	Total/NA	Water	7470A	582155
MB 280-582155/1-A	Method Blank	Total/NA	Water	7470A	582155
LCS 280-582155/2-A	Lab Control Sample	Total/NA	Water	7470A	582155

Prep Batch: 582392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total Recoverable	Water	3005A	
280-164684-2	MW-21S	Total Recoverable	Water	3005A	
280-164684-3	MW-22S	Total Recoverable	Water	3005A	
280-164684-4	DUP	Total Recoverable	Water	3005A	
MB 280-582392/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-582392/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 582755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total Recoverable	Water	6010C	582392
280-164684-2	MW-21S	Total Recoverable	Water	6010C	582392
280-164684-3	MW-22S	Total Recoverable	Water	6010C	582392
280-164684-4	DUP	Total Recoverable	Water	6010C	582392
MB 280-582392/1-A	Method Blank	Total Recoverable	Water	6010C	582392
LCS 280-582392/2-A	Lab Control Sample	Total Recoverable	Water	6010C	582392

Metals

Analysis Batch: 582969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total Recoverable	Water	6010C	582392
280-164684-2	MW-21S	Total Recoverable	Water	6010C	582392
280-164684-3	MW-22S	Total Recoverable	Water	6010C	582392
280-164684-4	DUP	Total Recoverable	Water	6010C	582392
MB 280-582392/1-A	Method Blank	Total Recoverable	Water	6010C	582392
LCS 280-582392/2-A	Lab Control Sample	Total Recoverable	Water	6010C	582392

General Chemistry

Analysis Batch: 581655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	SM 2540C	
280-164684-2	MW-21S	Total/NA	Water	SM 2540C	
280-164684-3	MW-22S	Total/NA	Water	SM 2540C	
280-164684-4	DUP	Total/NA	Water	SM 2540C	
MB 280-581655/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581655/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-581655/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 581758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	9056A	
280-164684-2	MW-21S	Total/NA	Water	9056A	
280-164684-3	MW-22S	Total/NA	Water	9056A	
280-164684-4	DUP	Total/NA	Water	9056A	
MB 280-581758/13	Method Blank	Total/NA	Water	9056A	
MB 280-581758/45	Method Blank	Total/NA	Water	9056A	
LCS 280-581758/43	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581758/44	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581758/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 582062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164684-1	MW-24S	Total/NA	Water	9056A	
280-164684-2	MW-21S	Total/NA	Water	9056A	
280-164684-2	MW-21S	Total/NA	Water	9056A	
280-164684-3	MW-22S	Total/NA	Water	9056A	
280-164684-3	MW-22S	Total/NA	Water	9056A	
280-164684-4	DUP	Total/NA	Water	9056A	
280-164684-4	DUP	Total/NA	Water	9056A	
MB 280-582062/6	Method Blank	Total/NA	Water	9056A	
LCS 280-582062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-582062/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-582062/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Client Sample ID: MW-24S
Date Collected: 07/19/22 09:20
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582755	08/02/22 13:26	MAB	ETA DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582969	08/03/22 15:13	KRP	ETA DEN
Total/NA	Prep	3020A			50 mL	50 mL	581812	07/25/22 14:32	MCR	ETA DEN
Total/NA	Analysis	6020A		1			581901	07/26/22 00:59	LMT	ETA DEN
Total/NA	Prep	7470A			30 mL	50 mL	582155	07/27/22 22:57	CEH	ETA DEN
Total/NA	Analysis	7470A		1			582387	07/28/22 19:42	CEH	ETA DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581758	07/24/22 10:09	RAF	ETA DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	582062	07/27/22 14:00	MEC	ETA DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581655	07/22/22 10:34	ASP	ETA DEN

Client Sample ID: MW-21S
Date Collected: 07/19/22 10:50
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582755	08/02/22 13:30	MAB	ETA DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582969	08/03/22 15:17	KRP	ETA DEN
Total/NA	Prep	3020A			50 mL	50 mL	581812	07/25/22 14:32	MCR	ETA DEN
Total/NA	Analysis	6020A		1			581901	07/26/22 01:03	LMT	ETA DEN
Total/NA	Prep	7470A			30 mL	50 mL	582155	07/27/22 22:57	CEH	ETA DEN
Total/NA	Analysis	7470A		1			582387	07/28/22 19:44	CEH	ETA DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581758	07/24/22 10:24	RAF	ETA DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	582062	07/27/22 14:16	MEC	ETA DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	582062	07/27/22 14:32	MEC	ETA DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581655	07/22/22 10:34	ASP	ETA DEN

Client Sample ID: MW-22S
Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582755	08/02/22 13:34	MAB	ETA DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582969	08/03/22 15:21	KRP	ETA DEN
Total/NA	Prep	3020A			50 mL	50 mL	581812	07/25/22 14:32	MCR	ETA DEN
Total/NA	Analysis	6020A		1			581901	07/26/22 01:07	LMT	ETA DEN
Total/NA	Prep	7470A			30 mL	50 mL	582155	07/27/22 22:57	CEH	ETA DEN
Total/NA	Analysis	7470A		1			582387	07/28/22 19:52	CEH	ETA DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581758	07/24/22 11:12	RAF	ETA DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-2
SDG: AVS NEW WELLS

Client Sample ID: MW-22S

Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	10 mL	582062	07/27/22 14:48	MEC	ETA DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	582062	07/27/22 15:04	MEC	ETA DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581655	07/22/22 10:34	ASP	ETA DEN

Client Sample ID: DUP

Date Collected: 07/19/22 12:45
Date Received: 07/21/22 09:30

Lab Sample ID: 280-164684-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582755	08/02/22 13:38	MAB	ETA DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	582392	08/01/22 14:47	MCR	ETA DEN
Total Recoverable	Analysis	6010C		1			582969	08/03/22 15:25	KRP	ETA DEN
Total/NA	Prep	3020A			50 mL	50 mL	581812	07/25/22 14:32	MCR	ETA DEN
Total/NA	Analysis	6020A		1			581901	07/26/22 01:11	LMT	ETA DEN
Total/NA	Prep	7470A			30 mL	50 mL	582155	07/27/22 22:57	CEH	ETA DEN
Total/NA	Analysis	7470A		1			582387	07/28/22 19:54	CEH	ETA DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581758	07/24/22 11:28	RAF	ETA DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	582062	07/27/22 15:20	MEC	ETA DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	582062	07/27/22 15:36	MEC	ETA DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	581655	07/22/22 10:34	ASP	ETA DEN

Laboratory References:
ETA DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Job ID: 280-164684-2
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS
SDG: AVS NEW WELLS

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-23

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
7470A	7470A	Water	Mercury

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A. Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No
Client Contact: Mr. Aaron Knutson	Phone: 701-745-7238	E-Mail: Shelby.Turner@ET.EurofinsUS.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:
Address: 3901 Highway 200A	Due Date Requested:	Analysis Requested		
City: Stanton	TAT Requested (days): Standard			
State, Zip: ND, 58571				
Phone: 701-745-7238(Tel)	PO #:			
Email: aknutson@bepc.com	WO #:			
Project Name: CCR Groundwater - North Dakota Sites	Project #: 28021258			
Site: AVS NEW WELLS	SSOW#:			

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total Calcium and Boron (App III)	9056A_28D - Chloride, Fluoride, Sulfate	2540C_Calcd - TDS	6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV)	9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	D		
MW-245	7-19-22	0920	G	W	N		X	X	X	X	X		pH - 8.15
MW-215	7-19-22	1050	G	W	N		X	X	X	X	X		pH - 8.08
MW-225	7-19-22	1245	G	W	N		X	X	X	X	X		pH - 8.25
DUP	7-19-22	1245	G	W	N		X	X	X	X	X		pH - 8.25

280-164684 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:

	Date/Time	Company		Date/Time	Company
Relinquished by:	7-20-22		Received by:	7/21/22 0930	EHADA
Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 0.6 KLS CF#0.1

Ver: 01/16/2019

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 20JUL22
ACTWGT: 61.00 LB
CAD: 251286197/INET4490

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE

INV:
PO:

DEPT:

581J20A92/FE4A

FedEx Express

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7774 3383 0074

80002
DEN
CO-US

XA LAAA

Custody Seal
DATE 7-20-22
SIGNATURE

Eurofins | Environment Testing America

1891145

280-164684 Waybill

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-164684-2
SDG Number: AVS NEW WELLS

Login Number: 164684
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS New CCR Wells (2951) **PO:** 790708-01

Kevin Solie
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951001 **Date Collected:** 08/24/2022 10:25 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**75.1**	mg/L	10	2	08/31/2022 09:41	08/31/2022 09:41	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	09/08/2022 16:33	09/08/2022 11:14	MDE	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.16**	mg/L	0.1	1	08/25/2022 17:00	08/26/2022 10:38	MDE	MA,NDA	
Calcium	**5.11**	mg/L	1	1	08/25/2022 17:00	08/30/2022 11:04	MDE	MA,NDA	
Lithium	**0.0525**	mg/L	0.02	1	08/25/2022 17:00	08/31/2022 14:47	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Arsenic	**0.0023**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Barium	**0.0750**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Chromium	**0.0030**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Lead	**0.0005**	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Molybdenum	**0.0119**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:20	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951001 **Date Collected:** 08/24/2022 10:25 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**50.2**	mg/L	4.0	2	08/30/2022 12:18	08/30/2022 12:18	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.47**	mg/L	0.1	1	08/26/2022 22:31	08/26/2022 22:31	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**2020**	mg/L	10	1	08/26/2022 15:33	08/26/2022 15:33	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951002 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**253**	mg/L	50	10	08/31/2022 09:32	08/31/2022 09:32	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	09/08/2022 16:33	09/08/2022 11:14	MDE	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.16**	mg/L	0.1	1	08/25/2022 17:00	08/26/2022 10:38	MDE	MA,NDA	
Calcium	**2.72**	mg/L	1	1	08/25/2022 17:00	08/30/2022 11:06	MDE	MA,NDA	
Lithium	**0.0478**	mg/L	0.02	1	08/25/2022 17:00	08/31/2022 14:47	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Arsenic	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Barium	**0.0591**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Chromium	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Lead	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Molybdenum	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:24	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951002 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**13.2**	mg/L	2.0	1	08/30/2022 12:07	08/30/2022 12:07	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.78**	mg/L	0.1	1	08/26/2022 22:40	08/26/2022 22:40	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1660**	mg/L	10	1	08/26/2022 15:33	08/26/2022 15:33	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951003 **Date Collected:** 08/24/2022 12:55 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**618**	mg/L	25	5	08/31/2022 09:33	08/31/2022 09:33	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	09/08/2022 16:33	09/08/2022 11:14	MDE	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.14**	mg/L	0.1	1	08/25/2022 17:00	08/26/2022 10:39	MDE	MA,NDA	
Calcium	**5.43**	mg/L	1	1	08/25/2022 17:00	08/30/2022 11:08	MDE	MA,NDA	
Lithium	**0.0481**	mg/L	0.02	1	08/25/2022 17:00	08/31/2022 14:48	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Arsenic	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Barium	**0.0465**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Chromium	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Lead	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Molybdenum	**0.0028**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:28	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951003 **Date Collected:** 08/24/2022 12:55 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**18.9**	mg/L	2.0	1	08/30/2022 12:09	08/30/2022 12:09	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.49**	mg/L	0.1	1	08/26/2022 22:50	08/26/2022 22:50	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**2220**	mg/L	10	1	08/26/2022 15:33	08/26/2022 15:33	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951004 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**240**	mg/L	50	10	08/31/2022 09:34	08/31/2022 09:34	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	09/08/2022 16:33	09/08/2022 11:14	MDE	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.15**	mg/L	0.1	1	08/25/2022 17:00	08/26/2022 10:39	MDE	MA,NDA	
Calcium	**2.85**	mg/L	1	1	08/25/2022 17:00	08/30/2022 11:10	MDE	MA,NDA	
Lithium	**0.0472**	mg/L	0.02	1	08/25/2022 17:00	08/31/2022 14:48	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Arsenic	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Barium	**0.0587**	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Chromium	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Lead	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Molybdenum	<0.002	mg/L	0.002	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	08/25/2022 17:00	08/30/2022 14:32	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 2951004 **Date Collected:** 08/24/2022 11:40 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 08/25/2022 15:25 **Collector:** Client

Temp @ Receipt (C): 5.9

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**13.3**	mg/L	2.0	1	08/30/2022 12:10	08/30/2022 12:10	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.76**	mg/L	0.1	1	08/26/2022 22:58	08/26/2022 22:58	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1640**	mg/L	10	1	08/26/2022 15:33	08/26/2022 15:33	RAA	MA,NDA	

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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories, In
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Bismarck, ND 58501
Phone: (701) 258-9720
Fax: (701) 258-9724

Basin Electric Power Cooperative
WO: 2951

Custody Record

Page 1 of 1

BASIN ELECTRIC POWER COOP.
Leland Olds Station
3901 HIGHWAY 200A
STANTON, ND 58571

Account #:
Phone #: Kevin 557-5495 Aaron 745-7238
Contact: Kevin Solie
Email: ksolie@bepc.com / aknutson@bepc.com
Name of Sampler: A. Knutson
For e-mail report check box ☒

Billing Address (indicate if different from above):
Antelope Valley Station
Attn: Liabilities
294 Cty 15, Beulah, ND 58523

Quote Number
Date Submitted: 8-25-22
Project Name/Number: AVS NEW CCR WELLS
Purchase Order #:

Sample Information					Filtered Y or (N)	Bottle Type												Analysis
Lab Use Only Lab Number	Sample ID	Sample Matrix PW- Potable Water GW - Groundwater WW - Wastewater SW - Surface Water S - Soil/Sludge O- Other	Date Sampled	Time Sampled		Untreated	Sterile	500 ml HNO3	1000 ml HNO3	250 ml H2SO4	1000 ml NaOH	Amber HCl	Amber Unpres.	VOC Vials HCl	Amber H2SO4	40 ml Vials H2SO4	Other:	Analysis Required
001	MW 24S	GW	8-24-22	1025				X	X								X	B, Ca, Cl, F, SO4, TDS
002	MW 22S	GW	8-24-22	1140				X	X								X	Sb, As, Ba, Be, Cd
003	MW 21S	GW	8-24-22	1255				X	X								X	Cr, Co, Pb, Li, Hg
004	DUP	GW	8-24-22	1140				X	X								X	Mo, Se, Tl, Radium 226 & 228

Comments:

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.				C. Chu	25 Aug 22	1525	5.9°C TM920
2.							
3.							

N1157-9 0118

Please submit the top two copies with your samples. We will return the completed original with your results.

Form # 80-90003-1 See above for page number Effective Date: 15 Jan 2018

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS 160 (3569) **PO:** 790708-01

Kevin Solie
Basin Electric Power Cooperative
1717 E Interstate Ave
Bismarck, ND 58503

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

Analyses performed under Minnesota Department of Health Accreditation conforms to the current TNI standards.

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Sample Comments

3569004 (Dup) - Sample

Time sampled was not supplied by the client.

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569001 **Date Collected:** 09/28/2022 09:20 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**224**	mg/L	50	10	10/05/2022 11:17	10/05/2022 11:17	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	10/06/2022 09:20	10/06/2022 12:13	AMC	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.14**	mg/L	0.1	1	09/30/2022 17:00	10/07/2022 11:07	MDE	MA,NDA	
Calcium	**2.66**	mg/L	1	1	09/30/2022 17:00	10/10/2022 12:06	SLZ	MA,NDA	
Lithium	**0.0442**	mg/L	0.02	1	09/30/2022 17:00	10/06/2022 10:33	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Arsenic	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/18/2022 10:13	CC	MA,NDA	
Barium	**0.0602**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Chromium	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Lead	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Molybdenum	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:55	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569001 **Date Collected:** 09/28/2022 09:20 **Matrix:** Groundwater
Sample ID: MW 22S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**13.0**	mg/L	2.0	1	10/03/2022 11:47	10/03/2022 11:47	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.69**	mg/L	0.1	1	09/30/2022 00:12	09/30/2022 00:12	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1630**	mg/L	10	1	09/30/2022 17:00	09/30/2022 17:00	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569002 **Date Collected:** 09/28/2022 10:45 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**52.6**	mg/L	10	2	10/05/2022 11:39	10/05/2022 11:39	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	10/06/2022 09:20	10/06/2022 12:13	AMC	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.12**	mg/L	0.1	1	09/30/2022 17:00	10/07/2022 11:08	MDE	MA,NDA	
Calcium	**5.44**	mg/L	1	1	09/30/2022 17:00	10/10/2022 12:08	SLZ	MA,NDA	
Lithium	**0.0478**	mg/L	0.02	1	09/30/2022 17:00	10/06/2022 10:34	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Arsenic	**0.0022**	mg/L	0.002	5	09/30/2022 17:00	10/18/2022 10:38	CC	MA,NDA	
Barium	**0.0868**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Chromium	**0.0052**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Cobalt	**0.0020**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Lead	**0.0008**	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Molybdenum	**0.0102**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 16:59	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569002 **Date Collected:** 09/28/2022 10:45 **Matrix:** Groundwater
Sample ID: MW 24S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**52.5**	mg/L	2.0	1	10/03/2022 11:48	10/03/2022 11:48	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.41**	mg/L	0.1	1	09/30/2022 00:18	09/30/2022 00:18	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1980**	mg/L	10	1	09/30/2022 17:00	09/30/2022 17:00	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569003 **Date Collected:** 09/28/2022 12:15 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**581**	mg/L	25	5	10/05/2022 11:27	10/05/2022 11:27	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	10/06/2022 09:20	10/06/2022 12:13	AMC	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.14**	mg/L	0.1	1	09/30/2022 17:00	10/07/2022 11:10	MDE	MA,NDA	
Calcium	**5.12**	mg/L	1	1	09/30/2022 17:00	10/10/2022 12:10	SLZ	MA,NDA	
Lithium	**0.0460**	mg/L	0.02	1	09/30/2022 17:00	10/06/2022 10:35	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Arsenic	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/18/2022 10:17	CC	MA,NDA	
Barium	**0.0484**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Chromium	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Lead	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Molybdenum	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:19	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569003 **Date Collected:** 09/28/2022 12:15 **Matrix:** Groundwater
Sample ID: MW 21S **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**18.5**	mg/L	2.0	1	10/03/2022 11:49	10/03/2022 11:49	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.41**	mg/L	0.1	1	09/30/2022 00:24	09/30/2022 00:24	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**2200**	mg/L	10	1	09/30/2022 17:00	09/30/2022 17:00	RAA	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569004 **Date Collected:** 10/18/2022 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**53.3**	mg/L	10	2	10/05/2022 11:46	10/05/2022 11:46	EJV	MA,NDA	

Method: EPA 245.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Mercury	<0.0002	mg/L	0.0002	1	10/06/2022 09:20	10/06/2022 12:13	AMC	MA,NDA, SDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.12**	mg/L	0.1	1	09/30/2022 17:00	10/07/2022 11:10	MDE	MA,NDA	
Calcium	**5.40**	mg/L	1	1	09/30/2022 17:00	10/10/2022 12:11	SLZ	MA,NDA	
Lithium	**0.0476**	mg/L	0.02	1	09/30/2022 17:00	10/06/2022 10:36	SLZ	NDA	

Method: EPA 6020B

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Antimony	<0.001	mg/L	0.001	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Arsenic	**0.0020**	mg/L	0.002	5	09/30/2022 17:00	10/18/2022 10:50	CC	MA,NDA	
Barium	**0.0862**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Beryllium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Cadmium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Chromium	**0.0053**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Cobalt	<0.002	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Lead	**0.0008**	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Molybdenum	**0.0100**	mg/L	0.002	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Selenium	<0.005	mg/L	0.005	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	
Thallium	<0.0005	mg/L	0.0005	5	09/30/2022 17:00	10/14/2022 17:23	MDE	MA,NDA	

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Account #: 2040 **Client:** Basin Electric Power Cooperative

Analytical Results

Lab ID: 3569004 **Date Collected:** 10/18/2022 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 09/29/2022 15:51 **Collector:** Client

Temp @ Receipt (C): 2.2

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**51.9**	mg/L	2.0	1	10/03/2022 11:50	10/03/2022 11:50	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.40**	mg/L	0.1	1	09/30/2022 00:30	09/30/2022 00:30	RAA		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1990**	mg/L	10	1	09/30/2022 17:00	09/30/2022 17:00	RAA	MA,NDA	

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Member ACIL

Account #: 2040 **Client:** Basin Electric Power Cooperative

Minnesota Valley Testing Laboratories,
2616 East Broadway Avenue
Bismarck, ND 58501
Phone: (701) 258-9720

Basin Electric Power Cooperative
WO: 3569

Custody Record

Page 1 of

3569

BASIN ELECTRIC POWER COOP.
Leland Olds Station
3901 HIGHWAY 200A
STANTON, ND 58571

Account #:
Phone #: Kevin 202-5096 / Arron 745-7238
Contact: Kevin Solie
Email: Rsolie@bepc.com / aknutson@bepc.com
Name of Sampler: A. Knutson
For e-mail report check box ☒

Billing Address (indicate if different from above):
Antelope Valley Station
Att: Liabilities
294 Cty 15, Beulah ND 58523-9475

Quote Number
Date Submitted: 9-29-22
Project Name/Number: AVS 160
Purchase Order #: 790708-01

Sample Information					Filtered Y or N		Bottle Type											Analysis
Lab Use Only Lab Number	Sample ID	Sample Matrix PW- Potable Water GW - Groundwater WW - Wastewater SW - Surface Water S - Soil/Sludge O- Other	Date Sampled	Time Sampled			Untreated	Sterile	500 ml HNO3	1000 ml H2SO4	250 ml H2SO4	1000 ml NaOH	Amber HCl	Amber Unpres.	VOC Vials HCl	Amber H2SO4	40 ml Vials H2SO4	Other:	Analysis Required
001	mw 22 S	GW	9-28-22	0920			X		X									X	B, Ca, Cl, F, So4, TDS
002	mw 24 S	GW	9-28-22	1045			X		X									X	Sb, As, Ba, Be, Cd, Cr
003	mw 21 S	GW	9-28-22	1215			X		X									X	Co, Pb, Li, Hg, Mo Se, TL
004	Dup																		Radium 226 + 228

Comments:

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.					29Sept22	1551	2.2°C TM920
2.							
3.							

N1157-9 0118

Please submit the top two copies with your samples. We will return the completed original with your results.

Form # 80-90003-1 See above for page number Effective Date: 15 Jan 2018

Attachment B
Input and Output Data Files for Calculation of Upper and Lower Prediction Limits (2016-2023)

Event	Well ID	Sample Dat	Date Index	Sample Typ	Sample Nai	Boron	D_Boron	Calcium	D_Calcium	Chloride	D_Chloride	Fluoride	D_Fluoride	pH	D_pH	Sulfate	D_Sulfate	TDS	D_TDS
2016_07_J	MW-18(S)	########	0	N	MW-18(S)-	0.11	1	12	1	5.6	1	1.2	1	9.97	1	370	1	1600	1
2016_07_J	MW-19(S)	########	0.097222	N	MW-19(S)-	0.11	1	13	1	12	1	0.5	1	7.93	1	680	1	1900	1
2017_02_F	MW-19(S)	2/2/2017	204.0035	N	MW-19(S)-	0.2	0	5.4	1	12	1	0.58	1	7.8	1	670	1	2000	1
2017_02_F	MW-18(S)	########	225.9826	N	MW-18(S)-	0.2	0	21	1	30	0	5	0	9.85	1	330	1	1100	1
2017_02_F	MW-19(S)	########	226.0139	N	MW-19(S)-	0.2	0	5.5	1	12	1	0.56	1	7.73	1	700	1	2000	1
2017_03_M	MW-19(S)	########	250.9028	N	MW-19(S)-	0.2	0	6.9	1	15	0	2.5	0	7.77	1	690	1	1900	1
2017_03_M	MW-18(S)	########	250.9965	N	MW-18(S)-	0.2	0	21	1	15	0	2.5	0	9.34	1	360	1	1400	1
2017_04_A	MW-18(S)	########	280.9965	N	MW-18(S)-	0.2	0	13	1	15	0	2.5	0	10.03	1	390	1	1400	1
2017_04_A	MW-19(S)	########	281.0486	N	MW-19(S)-	0.2	0	5.9	1	15	0	2.5	0	8.8	1	630	1	2000	1
2017_05_M	MW-18(S)	########	313.934	N	MW-18(S)-	0.2	0	12	1	5.4	1	1.7	1	8.86	1	350	1	1400	1
2017_05_M	MW-19(S)	########	314	N	MW-19(S)-	0.2	0	5.6	1	11	1	0.51	1	7.61	1	630	1	2000	1
2017_06_J	MW-18(S)	########	349.8785	N	MW-18(S)-	0.2	0	12	1					9.1	1			1300	1
2017_06_J	MW-19(S)	########	349.9271	N	MW-19(S)-	0.2	0	5.7	1					7.59	1			1900	1
2017_07_J	MW-18(S)	########	375.9306	N	MW-18(S)-	0.2	0	12	1					8.91	1			1400	1
2017_07_J	MW-19(S)	########	375.9896	N	MW-19(S)-	0.2	0	5	1					7.33	1			1900	1
2017_08_A	MW-18(S)	########	400.1875	N	MW-18(S)-	0.2	0	9.7	1	5.4	1	1.8	1	8.92	1	370	1	1300	1
2017_08_A	MW-19(S)	########	400.2326	N	MW-19(S)-	0.2	0	4.9	1	12	1	0.64	1	7.4	1	620	1	1800	1
2017_10_C	MW-18(S)	########	453.941	N	MW-18(S)-101017					5.6	1	1.6	1	9.05	1	360	1		
2017_10_C	MW-19(S)	########	453.9688	N	MW-19(S)-101017					12	1	0.56	1	7.73	1	660	1		
2017_10_C	MW-18(S)	########	456.1007	N	MW-18(S)-101217					5.8	1	1.9	1	9.14	1	360	1		
2017_10_C	MW-19(S)	########	456.1285	N	MW-19(S)-101217					12	1	0.65	1	7.8	1	670	1		
2018_04_A	MW-18(S)	########	650.9514	N	MW-18(S)-	0.14	1	10	1	7	1	2	1	9	1	320	1	1200	1
2018_04_A	MW-19(S)	########	650.9931	N	MW-19(S)-	0.16	1	4.6	1	12	1	0.63	1	8.05	1	660	1	2000	1
2018_10_C	MW-18(S)	########	818.9201	N	MW-18(S)_	0.136	1	8.6	1	6.8	1	1.85	1	9.35	1	319	1	1510	1
2018_10_C	MW-19(S)	########	818.9479	N	MW-19(S)_	0.154	1	4.34	1	12.7	1	0.56	1	8.63	1	669	1	2010	1
2019_05_M	MW-18(S)	########	1041.941	N	MW-18(S)-	0.136	1	9.85	1	7.99	1	2.06	1	8.89	1	282	1	1210	1
2019_05_M	MW-19(S)	########	1041.965	N	MW-19(S)-	0.147	1	4.02	1	13.1	1	0.605	1	7.38	1	683	1	2110	1
2019_10_C	MW-18(S)	########	1189.955	N	MW-18(S)-	0.127	1	9.56	1	6.31	1	1.6	1	9.33	1	263	1	1230	1
2019_10_C	MW-19(S)	########	1190.028	N	MW-19(S)-	0.144	1	3.97	1	12.7	1	0.532	1	8.37	1	666	1	2020	1
2020_06_J	MW-18(S)	########	1428.913	N	MW-18(S)_	0.118	1	13	1	4.94	1	1.29	1	9.95	1	346	1		
2020_06_J	MW-19(S)	########	1428.962	N	MW-19(S)_	0.142	1	3.94	1	10.6	1	0.559	1	7.95	1	642	1	1990	1
2020_10_C	MW-19(S)	########	1568.038	N	MW-19(S)_	0.155	1	4.48	1	11.3	1	0.588	1	7.8	1	707	1	2190	1
2020_10_C	MW-18(S)	########	1568.097	N	MW-18(S)_	0.12	1	5.93	1	4.65	1	1.28	1	9.11	1	356	1	1670	1
2021_05_M	MW-19(S)	########	1777.875	N	MW-19(S)_	0.166	1	4.43	1	12.1	1	0.909	1	7.87	1	707	1	2120	1
2021_05_M	MW-18(S)	########	1777.944	N	MW-18(S)_	0.121	1	4.36	1	4.78	1	1.35	1	9.09	1	395	1	1670	1
2021_05_M	MW-21(S)	########	1778.003	N	MW-21(S)_	0.155	1	8.62	1	13.7	1	1.54	1	7.83	1	617	1	2240	1
2021_07_J	MW-21(S)	########	1833.872	N	MW-21(S)_	0.141	1	6.6	1	16	1	1.2	1	7.9	1	618	1	2270	1
2021_09_S	MW-21(S)	########	1903.483	FD	MW-21(S)_	0.154	1	2.67	1	16.9	1	1.32	1	7.9	1	769	1	2690	1
2021_09_S	MW-21(S)	########	1904	N	MW-21(S)_	0.151	1	6.27	1	16.6	1	1.34	1	7.9	1	719	1	2160	1
2021_10_C	MW-19(S)	########	1916.958	N	MW-19(S)_	0.159	1	4.11	1	12	1	0.878	1	7.99	1	781	1	2090	1
2021_10_C	MW-18(S)	########	1917.038	N	MW-18(S)_	0.125	1	9.58	1	4.38	1	1.39	1	9.46	1	401	1	1650	1
2022_03_M	MW-21(S)	########	2086.483	N	MW-21(S)_	0.156	1	6.18	1	17.1	1	1.2	1	8.13	1	642	1	2160	1
2022_05_M	MW-21(S)	########	2142.483	N	MW-21(S)_	0.14	1	5.25	1					7.63	1				
2022_06_J	MW-21(S)	########	2170.483	N	MW-21(S)_062322					16.2	1	5.72	1			625	1	2130	1
2022_07_J	MW-18(S)	########	2190.931	N	MW-18(S)_	0.119	1	4.92	1	5.06	1	3.93	1	9.02	1	521	1	1680	1
2022_07_J	MW-19(S)	########	2190.969	N	MW-19(S)_	0.157	1	3.99	1	13.8	1	4.15	1	8.08	1	892	1	2070	1
2022_07_J	MW-21(S)	########	2196.483	N	MW-21(S)_	0.136	1	4.71	1	16.1	1	4.97	1	8.08	1	624	1	2170	1
2022_08_A	MW-21(S)	########	2232.483	N	MW-21(S)_	0.14	1	5.43	1	18.9	1	1.49	1	8.03	1	618	1	2220	1
2022_09_S	MW-21(S)	########	2267.483	N	MW-21(S)_	0.14	1	5.12	1	18.5	1	1.41	1	8	1	581	1	2200	1
2022_10_C	MW-19(S)	########	2295.483	N	MW-19(S)_	0.1	1	3.97	1	18.2	1	0.64	1	8.03	1	785	1	2190	1
2023_07_J	MW-18(S)	########	2560.483	N	MW-18(S)_	0.1	0	4.9	1	9.2	1	1.24	1	9.16	1	494	1	1730	1
2023_07_J	MW-19(S)	########	2560.98	N	MW-19(S)_	0.1	1	4.29	1	18.9	1	0.66	1	8.07	1	768	1	2100	1
2023_07_J	MW-21(S)	########	2567.483	N	MW-21(S)_	0.11	1	5.59	1	18.3	1	1.36	1	7.93	1	580	1	2600	1
2023_26_S	MW-18(S)	########	2630.483	N	MW-18(S)_	0.1	1	4.32	1	9.1	1	1.26	1	9.19	1	448	1	1780	1
2023_09_S	MW-19(S)	########	2630.98	N	MW-19(S)_	0.13	1	3.94	1	18.3	1	0.69	1	7.96	1	756	1	2160	1
2023_11_C	MW-21(S)	########	2645.483	N	MW-21(S)_	0.13	1	4.77	1	18.1	1	1.35	1	7.92	1	536	1	2140	1
2022_10_C	MW-18(S)	########	2660.483	N	MW-18(S)_	0.1	0	3.6	1	8.8	1	1.17	1	9.07	1	450	1	1730	1

Boron

General Statistics

Total Number of Observations	51	Number of Missing Observations	5
Number of Distinct Observations	24		
Number of Detects	34	Number of Non-Detects	17
Number of Distinct Detects	23	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	0.166	Maximum Non-Detect	0.2
Variance Detected	3.5274E-4	Percent Non-Detects	33.33%
Mean Detected	0.135	SD Detected	0.0188
Mean of Detected Logged Data	-2.016	SD of Detected Logged Data	0.145

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.933	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.119	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.15	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.133	KM SD	0.0196
95% UTL95% Coverage	0.173	95% KM UPL (t)	0.166
90% KM Percentile (z)	0.158	95% KM Percentile (z)	0.165
99% KM Percentile (z)	0.178	95% KM USL	0.191

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.121	SD	0.0263
95% UTL95% Coverage	0.175	95% UPL (t)	0.166
90% Percentile (z)	0.155	95% Percentile (z)	0.164
99% Percentile (z)	0.182	95% USL	0.199

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.602	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.137	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.15	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	50.49	k star (bias corrected MLE)	46.05
Theta hat (MLE)	0.00267	Theta star (bias corrected MLE)	0.00292
nu hat (MLE)	3433	nu star (bias corrected)	3132
MLE Mean (bias corrected)	0.135		
MLE Sd (bias corrected)	0.0198	95% Percentile of Chisquare (2kstar)	115.5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0915	Mean	0.132
Maximum	0.167	Median	0.136
SD	0.0198	CV	0.149
k hat (MLE)	43.7	k star (bias corrected MLE)	41.14
Theta hat (MLE)	0.00303	Theta star (bias corrected MLE)	0.00322
nu hat (MLE)	4457	nu star (bias corrected)	4196
MLE Mean (bias corrected)	0.132	MLE Sd (bias corrected)	0.0206
95% Percentile of Chisquare (2kstar)	104.5	90% Percentile	0.159

95% Percentile	0.168	99% Percentile	0.185

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.177	0.178	95% Approx. Gamma UPL	0.168	0.169
95% Gamma USL	0.2	0.202			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.133	SD (KM)	0.0196
Variance (KM)	3.8601E-4	SE of Mean (KM)	0.00332
k hat (KM)	45.58	k star (KM)	42.91
nu hat (KM)	4649	nu star (KM)	4377
theta hat (KM)	0.00291	theta star (KM)	0.00309
80% gamma percentile (KM)	0.149	90% gamma percentile (KM)	0.159
95% gamma percentile (KM)	0.168	99% gamma percentile (KM)	0.184

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.177	0.178	95% Approx. Gamma UPL	0.168	0.169
95% KM Gamma Percentile	0.167	0.168	95% Gamma USL	0.2	0.202

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.933	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.145	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.15	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.132	Mean in Log Scale	-2.034
SD in Original Scale	0.0199	SD in Log Scale	0.155
95% UTL95% Coverage	0.18	95% BCA UTL95% Coverage	0.166
95% Bootstrap (%) UTL95% Coverage	0.168	95% UPL (t)	0.17
90% Percentile (z)	0.16	95% Percentile (z)	0.169
99% Percentile (z)	0.188	95% USL	0.207

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.032	95% KM UTL (Lognormal)95% Coverage	0.18
KM SD of Logged Data	0.154	95% KM UPL (Lognormal)	0.17
95% KM Percentile Lognormal (z)	0.169	95% KM USL (Lognormal)	0.207

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.121	Mean in Log Scale	-2.139
SD in Original Scale	0.0263	SD in Log Scale	0.248
95% UTL95% Coverage	0.196	95% UPL (t)	0.179
90% Percentile (z)	0.162	95% Percentile (z)	0.177
99% Percentile (z)	0.21	95% USL	0.246

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	50	95% UTL with95% Coverage	0.2
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
Approximate Sample Size needed to achieve specified CC	93	95% UPL	0.2
95% USL	0.2	95% KM Chebyshev UPL	0.219

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

Calcium

General Statistics

Total Number of Observations	49	Number of Distinct Observations	41
		Number of Missing Observations	5
Minimum	3.6	First Quartile	4.43
Second Largest	13	Median	5.43
Maximum	13	Third Quartile	8.62
Mean	6.65	SD	2.95
Coefficient of Variation	0.444	Skewness	1.062
Mean of logged Data	1.811	SD of logged Data	0.398

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.063	d2max (for USL)	2.949

Normal GOF Test

Shapiro Wilk Test Statistic	0.8	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.229	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.126	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	12.74	90% Percentile (z)	10.43
	95% UPL (t)	11.65	95% Percentile (z)	11.5
	95% USL	15.35	99% Percentile (z)	13.51

Gamma GOF Test

A-D Test Statistic	2.688	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.189	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.127	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.153	k star (bias corrected MLE)	5.79
Theta hat (MLE)	1.081	Theta star (bias corrected MLE)	1.148
nu hat (MLE)	603	nu star (bias corrected)	567.5
MLE Mean (bias corrected)	6.65	MLE Sd (bias corrected)	2.763

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	11.82	90% Percentile	10.35
95% Hawkins Wixley (HW) Approx. Gamma UPL	11.86	95% Percentile	11.75
95% WH Approx. Gamma UTL with 95% Coverage	13.36	99% Percentile	14.7
95% HW Approx. Gamma UTL with 95% Coverage	13.47		
95% WH USL	17.55	95% HW USL	18

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.164	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.126	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	13.91	90% Percentile (z)	10.19
	95% UPL (t)	12.01	95% Percentile (z)	11.78
	95% USL	19.8	99% Percentile (z)	15.45

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r		48	95% UTL with	95% Coverage	13
Approx, f used to compute achieved CC		1.263	Approximate Actual Confidence Coefficient achieved by UTL		0.71
			Approximate Sample Size needed to achieve specified CC		93
95% Percentile Bootstrap UTL with	95% Coverage	13	95% BCA Bootstrap UTL with	95% Coverage	13
	95% UPL	13		90% Percentile	12
	90% Chebyshev UPL	15.59		95% Percentile	12.6
	95% Chebyshev UPL	19.64		99% Percentile	13
	95% USL	13			

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

Chloride

General Statistics

Total Number of Observations	51	Number of Missing Observations	5
Number of Distinct Observations	36		
Number of Detects	46	Number of Non-Detects	5
Number of Distinct Detects	34	Number of Distinct Non-Detects	2
Minimum Detect	4.38	Minimum Non-Detect	15
Maximum Detect	18.9	Maximum Non-Detect	30
Variance Detected	21.84	Percent Non-Detects	9.804%
Mean Detected	11.41	SD Detected	4.673
Mean of Detected Logged Data	2.339	SD of Detected Logged Data	0.462

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.115	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.129	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	11.24	KM SD	4.563
95% UTL95% Coverage	20.61	95% KM UPL (t)	18.96
90% KM Percentile (z)	17.09	95% KM Percentile (z)	18.74
99% KM Percentile (z)	21.85	95% KM USL	24.77

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	11.18	SD	4.591
95% UTL95% Coverage	20.61	95% UPL (t)	18.95
90% Percentile (z)	17.06	95% Percentile (z)	18.73
99% Percentile (z)	21.86	95% USL	24.79

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.281	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.168	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.131	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.394	k star (bias corrected MLE)	5.057
Theta hat (MLE)	2.116	Theta star (bias corrected MLE)	2.257
nu hat (MLE)	496.3	nu star (bias corrected)	465.2
MLE Mean (bias corrected)	11.41		
MLE Sd (bias corrected)	5.075	95% Percentile of Chisquare (2kstar)	18.46

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	4.38	Mean	11.23
Maximum	18.9	Median	12
SD	4.505	CV	0.401
k hat (MLE)	5.754	k star (bias corrected MLE)	5.429
Theta hat (MLE)	1.952	Theta star (bias corrected MLE)	2.069

nu hat (MLE)	586.9	nu star (bias corrected)	553.7
MLE Mean (bias corrected)	11.23	MLE Sd (bias corrected)	4.821
95% Percentile of Chisquare (2kstar)	19.48	90% Percentile	17.68
95% Percentile	20.15	99% Percentile	25.36

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	22.97	23.49	95% Approx. Gamma UPL	20.33	20.62
95% Gamma USL	30.65	32.04			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	11.24	SD (KM)	4.563
Variance (KM)	20.82	SE of Mean (KM)	0.667
k hat (KM)	6.065	k star (KM)	5.722
nu hat (KM)	618.7	nu star (KM)	583.6
theta hat (KM)	1.853	theta star (KM)	1.964
80% gamma percentile (KM)	14.88	90% gamma percentile (KM)	17.52
95% gamma percentile (KM)	19.91	99% gamma percentile (KM)	24.93

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	23.24	23.78	95% Approx. Gamma UPL	20.52	20.83
95% KM Gamma Percentile	20.18	20.46	95% Gamma USL	31.14	32.61

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.892	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.189	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.129	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	11.19	Mean in Log Scale	2.325
SD in Original Scale	4.521	SD in Log Scale	0.445
95% UTL95% Coverage	25.5	95% BCA UTL95% Coverage	18.9
95% Bootstrap (%) UTL95% Coverage	18.9	95% UPL (t)	21.71
90% Percentile (z)	18.09	95% Percentile (z)	21.26
99% Percentile (z)	28.79	95% USL	38.25

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.324	95% KM UTL (Lognormal)95% Coverage	25.96
KM SD of Logged Data	0.454	95% KM UPL (Lognormal)	22.04
95% KM Percentile Lognormal (z)	21.57	95% KM USL (Lognormal)	39.26

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	11.18	Mean in Log Scale	2.321
SD in Original Scale	4.591	SD in Log Scale	0.45
95% UTL95% Coverage	25.67	95% UPL (t)	21.81
90% Percentile (z)	18.13	95% Percentile (z)	21.35
99% Percentile (z)	29.02	95% USL	38.68

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	50	95% UTL with95% Coverage	18.9
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
Approximate Sample Size needed to achieve specified CC	93	95% UPL	18.9
95% USL	30	95% KM Chebyshev UPL	31.32

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

Fluoride

General Statistics

Total Number of Observations	47	Number of Missing Observations	5
Number of Distinct Observations	37		
Number of Detects	42	Number of Non-Detects	5
Number of Distinct Detects	35	Number of Distinct Non-Detects	2
Minimum Detect	0.5	Minimum Non-Detect	2.5
Maximum Detect	2.06	Maximum Non-Detect	5
Variance Detected	0.231	Percent Non-Detects	10.64%
Mean Detected	1.115	SD Detected	0.481
Mean of Detected Logged Data	0.00934	SD of Detected Logged Data	0.463

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.074	d2max (for USL)	2.933

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.842	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.135	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.115	KM SD	0.475
95% UTL95% Coverage	2.1	95% KM UPL (t)	1.921
90% KM Percentile (z)	1.724	95% KM Percentile (z)	1.896
99% KM Percentile (z)	2.22	95% KM USL	2.507

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.156	SD	0.497
95% UTL95% Coverage	2.188	95% UPL (t)	2
90% Percentile (z)	1.793	95% Percentile (z)	1.974
99% Percentile (z)	2.313	95% USL	2.615

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.75	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.186	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.137	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.184	k star (bias corrected MLE)	4.83
Theta hat (MLE)	0.215	Theta star (bias corrected MLE)	0.231
nu hat (MLE)	435.5	nu star (bias corrected)	405.7
MLE Mean (bias corrected)	1.115		
MLE Sd (bias corrected)	0.507	95% Percentile of Chisquare (2kstar)	17.84

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.5	Mean	1.111
Maximum	2.06	Median	1.2
SD	0.463	CV	0.416
k hat (MLE)	5.568	k star (bias corrected MLE)	5.227
Theta hat (MLE)	0.199	Theta star (bias corrected MLE)	0.213
nu hat (MLE)	523.4	nu star (bias corrected)	491.3
MLE Mean (bias corrected)	1.111	MLE Sd (bias corrected)	0.486
95% Percentile of Chisquare (2kstar)	18.93	90% Percentile	1.761
95% Percentile	2.011	99% Percentile	2.54

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.311	2.36	95% Approx. Gamma UPL	2.03	2.056
95% Gamma USL	3.045	3.174			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.115	SD (KM)	0.475
Variance (KM)	0.225	SE of Mean (KM)	0.0742
k hat (KM)	5.515	k star (KM)	5.177
nu hat (KM)	518.4	nu star (KM)	486.6
theta hat (KM)	0.202	theta star (KM)	0.215
80% gamma percentile (KM)	1.493	90% gamma percentile (KM)	1.771
95% gamma percentile (KM)	2.024	99% gamma percentile (KM)	2.558

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.353	2.404	95% Approx. Gamma UPL	2.062	2.089
95% KM Gamma Percentile	2.024	2.048	95% Gamma USL	3.117	3.254

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.821	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.197	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.135	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.108	Mean in Log Scale	0.00934
SD in Original Scale	0.463	SD in Log Scale	0.446
95% UTL95% Coverage	2.543	95% BCA UTL95% Coverage	2
95% Bootstrap (%) UTL95% Coverage	2.012	95% UPL (t)	2.149
90% Percentile (z)	1.787	95% Percentile (z)	2.1
99% Percentile (z)	2.845	95% USL	3.728

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.00934	95% KM UTL (Lognormal)95% Coverage	2.606
KM SD of Logged Data	0.457	95% KM UPL (Lognormal)	2.193
95% KM Percentile Lognormal (z)	2.142	95% KM USL (Lognormal)	3.859

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.156	Mean in Log Scale	0.0468
SD in Original Scale	0.497	SD in Log Scale	0.46
95% UTL95% Coverage	2.719	95% UPL (t)	2.286
90% Percentile (z)	1.889	95% Percentile (z)	2.232
99% Percentile (z)	3.054	95% USL	4.036

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	46	95% UTL with95% Coverage	2.5
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.688
Approximate Sample Size needed to achieve specified CC	93	95% UPL	2.5
95% USL	5	95% KM Chebyshev UPL	3.207

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

pH

General Statistics

Total Number of Observations	55	Number of Distinct Observations	48
		Number of Missing Observations	1
Minimum	7.33	First Quartile	7.885
Second Largest	9.97	Median	8.08
Maximum	10.03	Third Quartile	9.08
Mean	8.451	SD	0.745
Coefficient of Variation	0.0882	Skewness	0.476
Mean of logged Data	2.131	SD of logged Data	0.0869

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.036	d2max (for USL)	2.994

Normal GOF Test

Shapiro Wilk Test Statistic	0.9	**Normal GOF Test**	
5% Shapiro Wilk P Value	9.8464E-5	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.119	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	9.969	90% Percentile (z)		9.406
	95% UPL (t)	9.71	95% Percentile (z)		9.677
	95% USL	10.68	99% Percentile (z)		10.19

Gamma GOF Test

A-D Test Statistic	2.058	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.214	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	133.7	k star (bias corrected MLE)	126.4
Theta hat (MLE)	0.0632	Theta star (bias corrected MLE)	0.0668
nu hat (MLE)	14708	nu star (bias corrected)	13907
MLE Mean (bias corrected)	8.451	MLE Sd (bias corrected)	0.752

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		9.736	90% Percentile		9.427
95% Hawkins Wixley (HW) Approx. Gamma UPL		9.739	95% Percentile		9.724
95% WH Approx. Gamma UTL with	95% Coverage	10.02	99% Percentile		10.3
95% HW Approx. Gamma UTL with	95% Coverage	10.03			
95% WH USL		10.83	95% HW USL		10.85

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	2.2195E-4	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.119	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	10.05	90% Percentile (z)		9.412
	95% UPL (t)	9.751	95% Percentile (z)		9.713
	95% USL	10.92	99% Percentile (z)		10.31

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r		54	95% UTL with	95% Coverage	9.97
Approx, f used to compute achieved CC		1.421	Approximate Actual Confidence Coefficient achieved by UTL		0.768
			Approximate Sample Size needed to achieve specified CC		93
95% Percentile Bootstrap UTL with	95% Coverage	9.988	95% BCA Bootstrap UTL with	95% Coverage	9.988
	95% UPL	9.954		90% Percentile	9.346
	90% Chebyshev UPL	10.71		95% Percentile	9.88
	95% Chebyshev UPL	11.73		99% Percentile	9.998
	95% USL	10.03			

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

Sulfate

General Statistics

Total Number of Observations	51	Number of Distinct Observations	42
		Number of Missing Observations	5
Minimum	263	First Quartile	380
Second Largest	785	Median	618
Maximum	892	Third Quartile	670
Mean	555.1	SD	161.8
Coefficient of Variation	0.291	Skewness	-0.225
Mean of logged Data	6.272	SD of logged Data	0.321

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Normal GOF Test**	
5% Shapiro Wilk P Value	0.0011	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.198	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	887.3	90% Percentile (z)		762.4
	95% UPL (t)	828.9	95% Percentile (z)		821.2
	95% USL	1035	99% Percentile (z)		931.4

Gamma GOF Test

A-D Test Statistic	2.252	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.224	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.124	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.76	k star (bias corrected MLE)	10.14
Theta hat (MLE)	51.61	Theta star (bias corrected MLE)	54.77
nu hat (MLE)	1097	nu star (bias corrected)	1034
MLE Mean (bias corrected)	555.1	MLE Sd (bias corrected)	174.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		874.7	90% Percentile		787
95% Hawkins Wixley (HW) Approx. Gamma UPL		882.7	95% Percentile		869.5
95% WH Approx. Gamma UTL with	95% Coverage	961.1	99% Percentile		1039
95% HW Approx. Gamma UTL with	95% Coverage	974.4			
	95% WH USL	1204		95% HW USL	1237

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	5.8224E-5	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.232	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	1023	90% Percentile (z)		798.8
	95% UPL (t)	911.3	95% Percentile (z)		897.6
	95% USL	1371	99% Percentile (z)		1117

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r		50	95% UTL with	95% Coverage	785
Approx, f used to compute achieved CC		1.316	Approximate Actual Confidence Coefficient achieved by UTL		0.731
			Approximate Sample Size needed to achieve specified CC		93
95% Percentile Bootstrap UTL with	95% Coverage	838.5	95% BCA Bootstrap UTL with	95% Coverage	836.5
	95% UPL	782.6		90% Percentile	719
	90% Chebyshev UPL	1045		95% Percentile	774.5
	95% Chebyshev UPL	1267		99% Percentile	838.5
	95% USL	892			

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

TDS

General Statistics

Total Number of Observations	50	Number of Distinct Observations	34
		Number of Missing Observations	6
Minimum	1100	First Quartile	1655
Second Largest	2270	Median	1995
Maximum	2600	Third Quartile	2128
Mean	1854	SD	349.4
Coefficient of Variation	0.188	Skewness	-0.522
Mean of logged Data	7.506	SD of logged Data	0.205

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.058	d2max (for USL)	2.957

Normal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.125	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	2573	90% Percentile (z)		2302
	95% UPL (t)	2446	95% Percentile (z)		2429
	95% USL	2887	99% Percentile (z)		2667

Gamma GOF Test

A-D Test Statistic	1.849	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.186	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.125	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	25.98	k star (bias corrected MLE)	24.43
Theta hat (MLE)	71.38	Theta star (bias corrected MLE)	75.89
nu hat (MLE)	2598	nu star (bias corrected)	2443
MLE Mean (bias corrected)	1854	MLE Sd (bias corrected)	375.1

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL		2520	90% Percentile		2348
95% Hawkins Wixley (HW) Approx. Gamma UPL		2531	95% Percentile		2511
95% WH Approx. Gamma UTL with	95% Coverage	2688	99% Percentile		2836
95% HW Approx. Gamma UTL with	95% Coverage	2707			
	95% WH USL	3133		95% HW USL	3176

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.19	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.125	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	2771	90% Percentile (z)		2364
	95% UPL (t)	2571	95% Percentile (z)		2546
	95% USL	3330	99% Percentile (z)		2927

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r		49	95% UTL with	95% Coverage	2270
Approx, f used to compute achieved CC		1.289	Approximate Actual Confidence Coefficient achieved by UTL		0.721
			Approximate Sample Size needed to achieve specified CC		93
95% Percentile Bootstrap UTL with	95% Coverage	2452	95% BCA Bootstrap UTL with	95% Coverage	2438
	95% UPL	2254		90% Percentile	2191
	90% Chebyshev UPL	2913		95% Percentile	2231
	95% Chebyshev UPL	3392		99% Percentile	2438
	95% USL	2600			

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