2022 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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List of Acronyms

AECOM	AECOM Technical Services, Inc.
AVS	Antelope Valley Station
Basin	Basin Electric Power Cooperative
CCR	Coal Combustion Residuals
FGD	flue gas desulfurization
ft amsl	feet above mean sea level
GWPSs	groundwater protection standards
LPL	lower prediction limit
mg/L	milligrams per liter
MW	megawatt(s)
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, 2022 at the Coal Combustion Residuals (CCR) Landfill at Antelope Valley Station (AVS), as required by 40 Code of Federal Regulations Section 257.90(e) of the United States Environmental Protection Agency 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-mode groundwater monitoring of the Landfill was initiated in 2018. Detection monitoring through October 2022 identified no statistically significant increases (SSIs) of Appendix III constituents (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids in the downgradient monitoring wells MW-15(S), MW-16(S), MW-17(S), and MW-20(S). Accordingly, the unit remains in detection monitoring into the next year.

Other activities and conditions for the 2022 annual reporting period include:

- Semiannual detection-mode groundwater monitoring events were conducted in July and October. Monitoring involved sampling of two background monitoring wells and four downgradient monitoring wells.
- Four Landfill expansion wells were installed in late 2020 north of the existing Landfill in preparation for Landfill expansion. Baseline groundwater monitoring events for these wells began in 2021. Five events were completed during the 2022 reporting period.
- 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:

- Completion of two semiannual detection-mode groundwater monitoring events.
- Incorporation of Landfill expansion wells into the AVS Landfill CCR monitoring program corresponding to the initial placement of CCR anticipated to begin in early 2023.
- Statistical evaluation of groundwater data for Appendix III constituents.

1. Introduction

On behalf of Basin Electric Power Cooperative (Basin), AECOM Technical Services, Inc. (AECOM) has prepared the 2022 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 2022. Section 3 summarizes the groundwater monitoring and corrective action activities completed in 2022, 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 2023. Section 5 summarizes the report content. Section 6 lists references cited in this report.

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 sixth annual report, and includes activities performed in calendar year 2022.

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.

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 reported that in 2022 the Landfill received approximately 551,000 cubic yards of solid waste, including fly ash, FGD waste, and a minor contribution of solid debris.

Expansion of the Landfill is underway with grading, liner placement, and expanded groundwater monitoring activities. Additional wells were installed in September 2020 and monitoring of baseline conditions was conducted in 2021 and 2022 as described in Section 2 below.

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-18s to 1,879 ft amsl at MW-23s. The potentiometric surface of the uppermost groundwater present within the Spaer is approximately 1,893 ft amsl in the western portion of the Landfill facility, sloping generally east to 1,880 ft amsl on the eastern side of the Landfill. Field hydraulic conductivity measurements from 2017 for the uppermost aquifer range from 1.65x10-4 centimeters per second in Well MW-19(S) to 2.48x10-9 centimeter per second in well MW-16(S).

2. CCR Groundwater Monitoring Activity Prior to 2022

The regulatory process for CCR groundwater monitoring and corrective action is established by 40 Code of Federal Regulations Sections 257.90 through 257.98. The process includes a phased approach to groundwater monitoring and leading (if applicable), to the establishment of groundwater protection standards (GWPSs) for each CCR unit. Exceedances of the 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 2022. CCR groundwater monitoring activities performed between January and December 2022 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 eight 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 with the remaining five events being completed in the 2022 reporting period. A review of preliminary findings from the baseline monitoring events is presented in Section 3.

Detection monitoring events prior to 2022 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, and 2021 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); and January 31, 2022 (AECOM 2022b), respectively.

3. CCR Groundwater Monitoring and Corrective Action Activities in 2022

This section summarizes the groundwater monitoring and corrective action conducted at the Landfill in 2022 to comply with the groundwater requirements of the CCR rule:

- Groundwater detection monitoring activities:
  - monitoring system evaluation completed in July and October 2022
  - groundwater sampling completed in July and October 2022
  - laboratory analysis of groundwater samples in July and October 2022
  - Statistical analysis of the monitoring results of the groundwater samples in July and October 2022
- Groundwater Corrective Action – Not applicable
- Five baseline monitoring events of Landfill expansion wells were completed in March, May, July, August, and September 2022.

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

Detection Monitoring Activities

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 October 2022.

Potentiometric surface maps constructed using the depth-to-groundwater measurements obtained at the beginning of each event are presented in Attachment A. During the October event, water levels in the active Landfill wells were measured on October 25, 2022. The expansion wells were not measured the same day but were measured one week later on November 1, 2022. The direction of groundwater flow observed in both 2022 events was generally east across the active Landfill, which is consistent with the direction observed in previous years. Expansion wells to the north of the active Landfill cell show a groundwater flow direction to the northeast. The flow direction supports the designation of the wells noted in Section 2 above to represent background groundwater quality and the quality of groundwater downgradient of the unit.

Groundwater Sampling and Analysis

The detection monitoring events were completed July and October of 2022 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), and MW-20(S) were sampled as part of detection monitoring. The tabulated laboratory analytical results are presented in Attachment A, along with potentiometric surface maps for the uppermost aquifer, inferred groundwater flow direction and 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).

In addition to detection monitoring, baseline groundwater monitoring events for the expansion wells were conducted beginning in 2021 (May, July, and September) continuing into 2022 (March, May, July, August, and September). Each baseline event included the gauging of depth to water at each of the four wells installed to monitor the expansion area. Depth to water measurements reported measurable water in MW-21(s), MW-22(S) and MW-24(S) but no water in MW-23(S) during the baseline period. Following depth to water gauging, the groundwater in MW-21(S), MW-22(S), and MW-24(S) was purged and sampled for analysis of the constituents listed in Part 257 Appendix III and Appendix IV of the CCR Rule following the site's SAP, Revision 1 (AECOM 2022a). These eight sampling events conclude the baseline monitoring period for the expansion area. It is anticipated wells MW-21(S), MW-22(S), and MW-24(S) will be incorporated into the CCR monitoring program during the 2023 reporting period corresponding to the initiation of CCR placement in the expansion area.

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) and MW-19(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), and MW-20(S) are located downgradient of the Landfill.

ProUCL Version 5.1 was selected for the development of site-specific background upper prediction limits (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. The input file used for development of the UPLs is provided as Attachment B. A lower prediction limit (LPL) was also developed for pH which is a two-sided parameter. 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 2022 sampling period were compared to the UPL to identify statistically significant increases (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) and MW-19(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 1** presents the control chart that shows the background mean (10.54 milligrams per liter [mg/L]); UCL (33.15) mg/L; and the baseline and detection monitoring results for downgradient compliance wells MW-15(S), MW-16(S), MW-17(S), and MW-20(S) through October 2022. The results depicted on **Figure 1** indicate that chloride does not exceed the UCL at any of the compliance monitoring wells for any sampling event. Therefore, chloride does not currently exhibit an SSI over background at any of the downgradient compliance wells.

The statistical analysis results indicate none of the Appendix III constituents had SSIs over background or statistically significant increasing trends in constituent concentrations as presented in **Table 2**. These statistical results are similar to the July 2022 results, with the exception of the subtraction of unverified SSIs of fluoride over background UPL in monitoring wells MW-15S, MW-17S, and MW-20S that were initially observed during the July 2022 event. Based on these results, assessment monitoring is not required at the AVS. Detection monitoring should continue at the site in 2023.

4. General Information

The following subsections summarize any problems encountered in the Landfill program through 2022, any resolutions to those problems, if needed, and upcoming actions planned for 2023.

Program Transitions 2022

There were no groundwater monitoring program transitions for the Landfill monitoring system during the January-December 2022 reporting period.

Problems Encountered

No problems were encountered during the January-December 2022 reporting period.

Actions Planned for 2023

Basin plans on continuing the detection monitoring program for the Landfill in 2023. The detection monitoring program will include semi-annual groundwater sampling events and the required statistical evaluations. Basin plans to incorporate the Landfill expansion wells into the CCR monitoring program for the Landfill during the 2023 reporting period at the commencement of placement of CCR waste into the expansion area.

5. Summary and Conclusions

Basin conducted two rounds of CCR groundwater detection monitoring at the Landfill and five baseline monitoring events for newly installed wells in the Landfill expansion area between January and December 2022. The detection sampling results 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 none of the Appendix III constituents had SSIs over background or statistically significant increasing trends in constituent concentrations. Based on these results, Assessment monitoring is not required at the Landfill. Detection monitoring will continue at the site in 2023.

6. References

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

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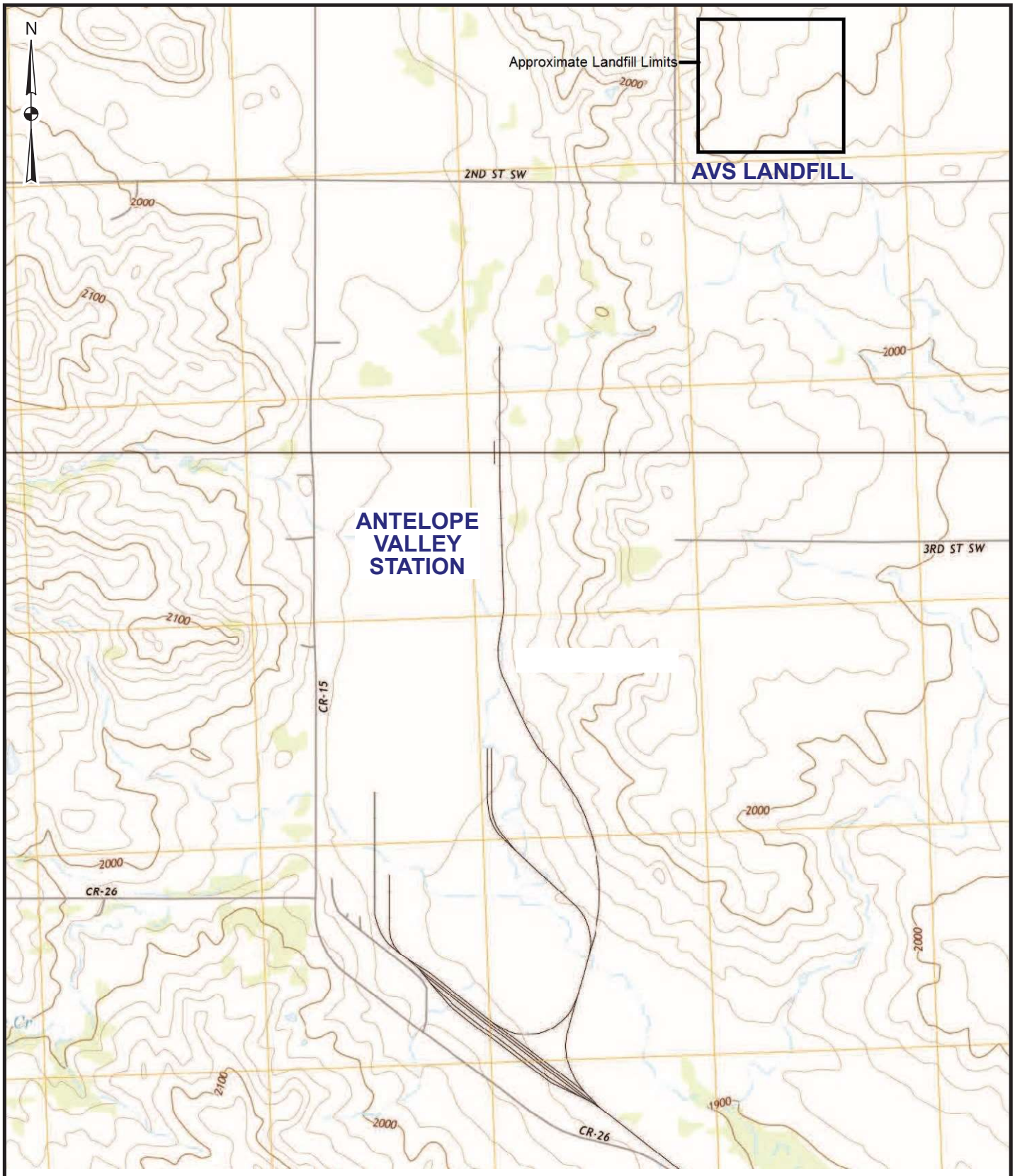
Starks, T. H. 1988. Evaluation of Control Chart Methodologies for Resource Conservation and Recovery Act (RCRA) Waste Sites, U.S. Environmental Protection Agency EPA/600/4-88/040. December. 40 pp.

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



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0 2,000 4,000

APPROXIMATE SCALE IN FEET

ND

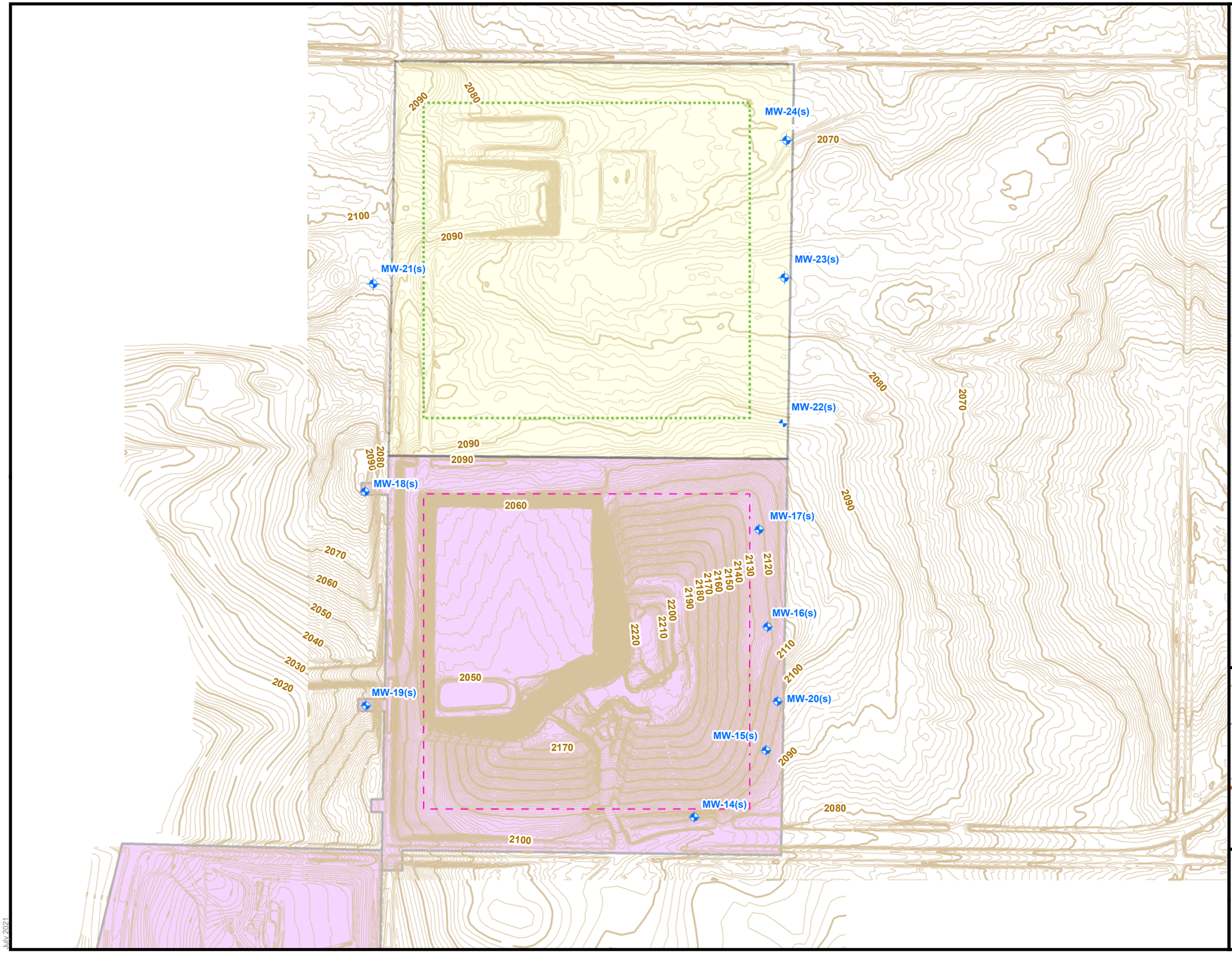
Quadrangle Location

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

BASIN ELECTRIC POWER COOPERATIVE

FIGURE 1
SITE LOCATION MAP
ANTELOPE VALLEY STATION LANDFILL

AECOM



Legend

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

N
W E
S

1 inch = 600 feet

0 600 1200
Feet

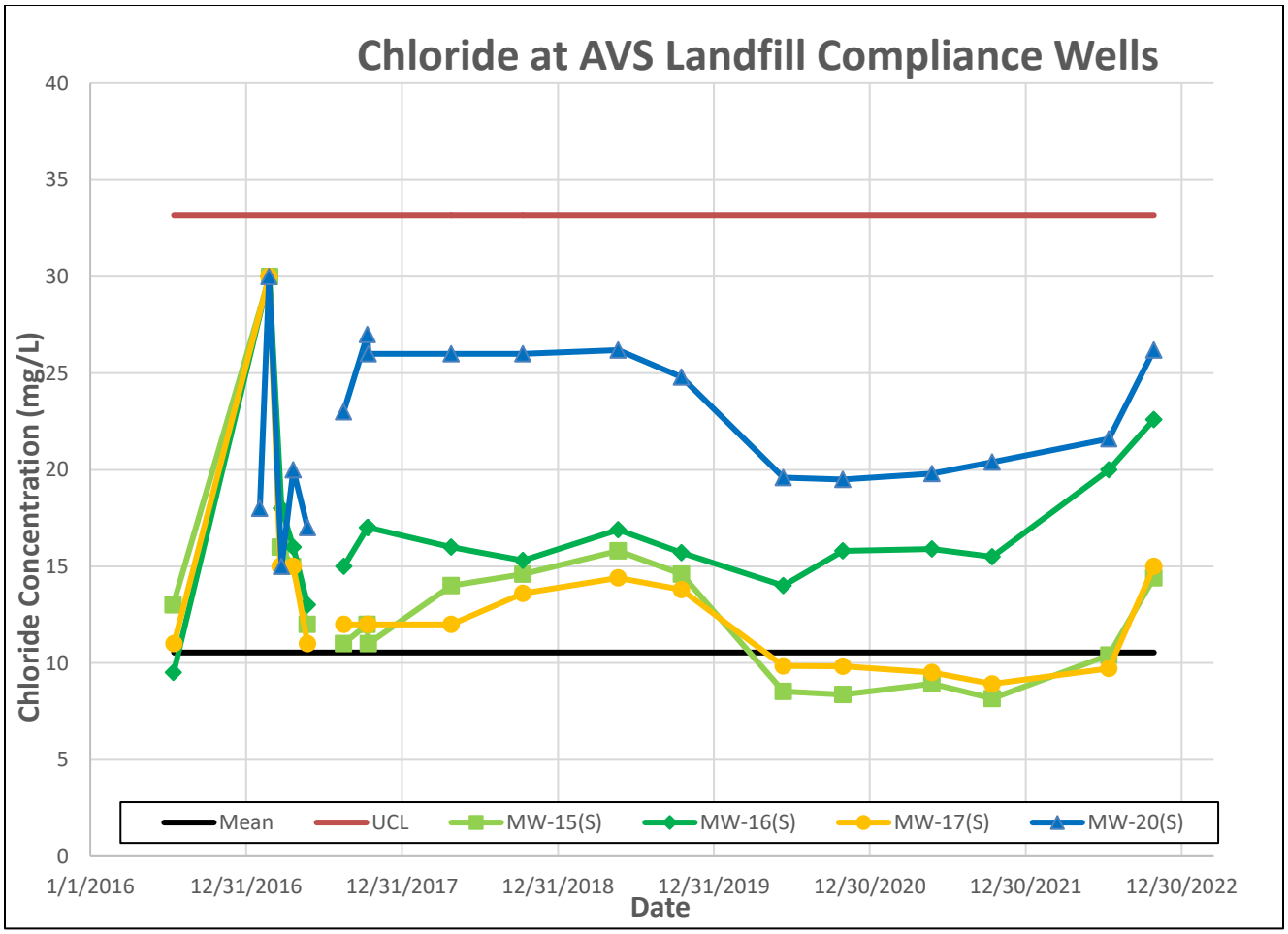
BASIN ELECTRIC POWER COOPERATIVE
FIGURE 2
AVS CCR MONITORING WELL NETWORK
AS OF DECEMBER 2022

JOB NO. 60635022

AECOM

July 2021

Figure 3. Chloride Control Chart 2022
Antelope Valley Station



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 Prediction or Control Limit
Boron (mg/L)	29	52	Yes/Yes	Parametric 95% UPL	0.2
Calcium (mg/L)	29	0	No/No	Nonparametric 95% UPL	21
Chloride (mg/L)	29	17	No/No	Control Chart 99.9% UCL	33.7
Fluoride (mg/L)	29	17	No/No	Nonparametric 95% UPL	3.75
pH (std units)	33	0	No/No	Nonparametric 95% UPL/LPL	9.99/7.37
Sulfate (mg/L)	29	0	No/No	Nonparametric 95% UPL	703.5
TDS (mg/L)	28	0	No/No	Nonparametric 95% UPL	2,154

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-MW-20(S)	Downgradient								

Notes:

SSIs determined using interwell upper prediction limits (UPLs) at background monitoring well MW-18(S) and MW-19(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, 2022 CCR Monitoring Program

AECOM Imagine it. Delivered.

2022 Sampling and Analysis Report AVS Landfill CCR Monitoring Program

Antelope Valley Station
Beulah, North Dakota

Basin Electric Power Cooperative

January 31, 2023

Prepared for:

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Project 60635022

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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 2022 in support of the AVS CCR Landfill groundwater monitoring program.

This Sampling and Analysis Report was prepared 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 2022 and provides baseline monitoring data conducted in 2022 for landfill expansion preparation.

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 from July 12, 2022 and November 1, 2022, 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 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:

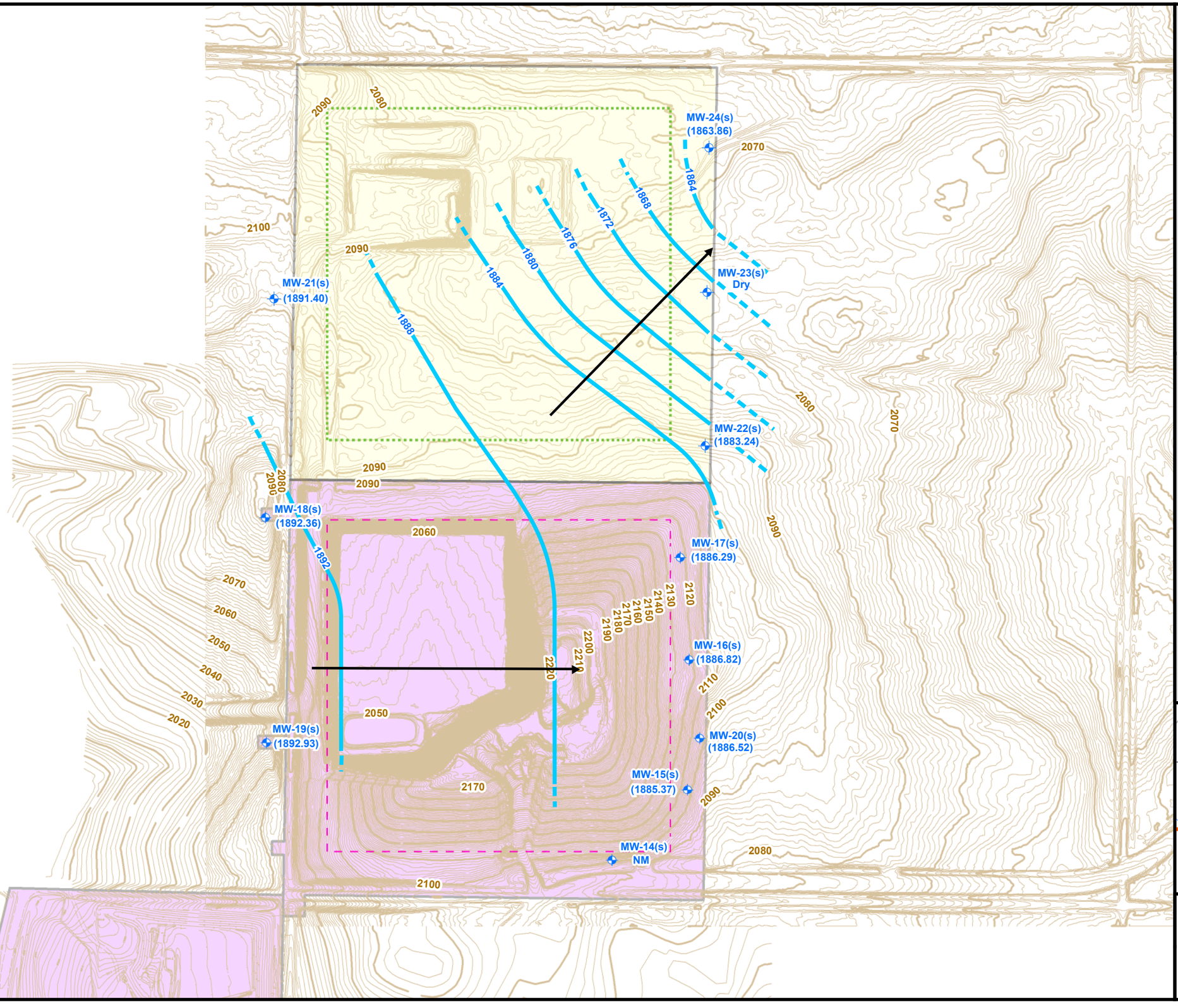
CCR unit	Background wells	Downgradient wells
Active Landfill	MW-18(S), MW-19(S)	MW15(S), MW-16(S), MW-17(S), MW-20(S)
Landfill Expansion Area	MW-21(S)	MW-22(S) and MW-24(S)

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. Groundwater level measurements at MW-14(S) were not recorded in 2022. Monitoring well MW-23(S) is excluded from the baseline monitoring network, because it was dry during sampling events in 2021 and 2022.

3. Groundwater Quality

The analytical testing laboratory provided reports presenting the results of laboratory analysis for each detection monitoring event and expansion baseline monitoring event. These laboratory reports are included in the operating record, are presented in **Appendix I**, 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 results for the active landfill CCR unit were compiled into a summary form as presented in **Table 3**. Analytical results for the landfill expansion area are found in **Appendix I**.

Figures



Legend

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

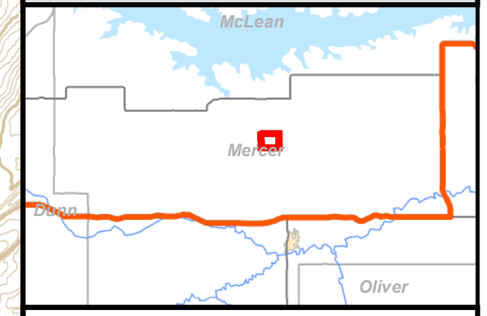
Note: Groundwater elevations were obtained on July 12, 2022.

NM Not Measured

N
W E
S

1 inch = 600 feet

0 600 1200
Feet



BASIN ELECTRIC POWER COOPERATIVE
FIGURE 1
POTENTIOMETRIC SURFACE MAP
JULY 2022

JOB NO. 60635022

AECOM

July 2021

Tables

Table 1A
Groundwater Depth And Elevation - July 2022
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

ACTIVE LANDFILL						
		Reference Elevation		July 12, 2022		Groundwater
		Top of Casing		Depth to Water		Elevation
Well ID		(feet, amsl)		(ft,btoiwc)		(ft, amsl)
MW-14(s)		2093.41		Not Measured		Not Measured
MW-15(s)		2104.77		219.40		1885.37
MW-16(s)		2123.59		236.77		1886.82
MW-17(s)		2124.89		238.60		1886.29
MW-18(s)		2091.60		199.24		1892.36
MW-19(s)		2042.56		149.63		1892.93
MW-20(s)		2107.47		220.95		1886.52
LANDFILL EXPANSION AREA (UNDER CONSTRUCTION)						
MW-21(s)		2094.72		203.32		1891.40
MW-22(s)		2093.90		210.66		1883.24
MW-23(s)		2080.16		Dry		Dry
MW-24(s)		2070.74		206.88		1863.86

ft btoiwc = feet, below top of inner well casing
ft amsl = feet, above mean sea level (Vertical Datum NGVD29)

Table 1B
Groundwater Depth And Elevation - November 2022
CCR Landfill Detection Program Groundwater Monitoring
Antelope Valley Station - Beulah, North Dakota

ACTIVE LANDFILL						
		Reference Elevation		October 25, 2022		Groundwater
		Top of Casing		Depth to Water		Elevation
Well ID		(feet, amsl)		(ft btoiwc)		(ft, amsl)
MW-14(s)		2093.41		Not Measured		Not Measured
MW-15(s)		2104.77		219.42		1885.35
MW-16(s)		2123.59		236.91		1886.68
MW-17(s)		2124.89		238.50		1886.39
MW-18(s)		2091.60		199		1892.60
MW-19(s)		2042.56		149.42		1893.14
MW-20(s)		2107.47		221		1886.47
LANDFILL EXPANSION AREA (UNDER CONSTRUCTION)						
				November 1, 2022		
MW-21(s)		2094.72		202.81		1891.91
MW-22(s)		2093.90		210.27		1883.63
MW-23(s)		2080.16		Dry (> 240 ft bgs)		Dry (> 240 ft bgs)
MW-24(s)		2070.74		206.85		1863.89

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	d_l (ft)	d_h (ft)	i (ft/ft)	n_e	K (ft/day)	v_s (ft/day)
7/13/2016	1050	3	2.86E-03	0.185	0.234	3.62E-03
2/22/2017	1140	3	2.63E-03	0.185	0.234	3.33E-03
3/21/2017	1020	2	1.96E-03	0.185	0.234	2.48E-03
4/19/2017	1050	3	2.86E-03	0.185	0.234	3.62E-03
5/23/2017	1230	3	2.44E-03	0.185	0.234	3.09E-03
6/28/2017	1020	3	2.94E-03	0.185	0.234	3.72E-03
7/24/2017	1110	3	2.70E-03	0.185	0.234	3.42E-03
8/16/2017	1410	3	2.13E-03	0.185	0.234	2.69E-03
4/25/2018	1260	3	2.38E-03	0.185	0.234	3.01E-03
10/10/2018	1245	3	2.41E-03	0.185	0.234	3.05E-03
5/21/2019	1425	3	2.11E-03	0.185	0.234	2.66E-03
10/16/2019	1500	3	2.00E-03	0.185	0.234	2.53E-03
6/10/2020	1170	2	1.71E-03	0.185	0.234	2.16E-03
10/27/2020	1110	2	1.80E-03	0.185	0.234	2.28E-03
5/24/2021	1600	4	2.5E-03	0.185	0.234	3.16E-03
10/11/2021	1650	4	2.4E-03	0.185	0.234	3.07E-03
7/12/2022	1500	4	2.67E-03	0.185	0.234	3.373E-03
11/1/2022	900	4	4.44E-03	0.185	0.234	5.622E-03

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
2022 CCR Monitoring Network Analytical Results

			Appendix III Constituents						
Well ID	Event	Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
MW-15(S)	July 2022	07/13/2022	0.147	5.37	10.4	4.44	8.29	402	1820
MW-16(S)	July 2022	07/13/2022	0.188	2.21	20.0	1.72	8.14	77.0	816
MW-17(S)	July 2022	07/13/2022	0.147	3.88	9.71	4.24	7.92	257	1660
MW-18(S)	July 2022	07/13/2022	0.119	4.92	5.06	3.93	9.02	521	1680
MW-19(S) Dup	July 2022	07/13/2022	0.151	3.98	14.0	4.15	8.08	881	45500
MW-19(S)	July 2022	07/13/2022	0.157	3.99	13.8	4.15	8.08	892	2070
MW-20(S)	July 2022	07/13/2022	0.14	5.25	21.6	4.52	7.96	78.5	1790
MW-15(S)	October 2022	10/26/2022	0.10	4.27	14.4	1.41	8.05	404	1880
MW-16(S)	October 2022	10/26/2022	0.12	3.26	22.6	1.83	8.11	79.0	1180
MW-17(S)	October 2022	10/26/2022	< 0.1	3.59	15.0	1.38	8.01	247	1740
MW-18(S)	October 2022	10/26/2022	< 0.1	3.60	8.8	1.17	9.07	450	1730
MW-19(S) Dup	October 2022	10/26/2022	0.10	3.93	18.2	0.64	8.03	793	2190
MW-19(S)	October 2022	10/26/2022	0.10	3.97	18.2	0.64	8.03	785	2190
MW-20(S)	October 2022	10/26/2022	0.10	4.20	26.2	1.14	8.00	55.0	1800

Notes:
mg/L = milligrams per liter
S.U. = Standard units

Appendix I: Laboratory Reports

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)
Lab Sample ID	Client Sample ID	Ba (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)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (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)
Lab Sample ID	Client Sample ID	Ba (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)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (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

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: 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 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
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 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
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 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
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			578742	06/21/22 17:17	MAB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Job ID: 280-162908-2
Project/Site: CCR Groundwater - ND Sites - AVS Landfill
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: 280-162908-2
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

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: 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 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
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 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
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 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
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			578742	06/21/22 17:17	MAB	TAL DEN

Lab Chronicle

Client: Basin Electric Power Cooperative
Job ID: 280-162908-2
Project/Site: CCR Groundwater - ND Sites - AVS Landfill
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
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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: 280-164440-1
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 Sample Results

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
Project/Site: CCR Groundwater - NDS - AVS NEW WELLS

Job ID: 280-164684-1
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	

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
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:

C. Carroll

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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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.

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www.MVTL.com

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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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: 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
2616 East Broadway Avenue
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
Att: 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 ~~H2SO4~~ 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. Cmt	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

Report Date: Friday, September 9, 2022 3:30:11 PM

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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:

C. Carroll

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

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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

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Account #: 2040 **Client:** Basin Electric Power Cooperative
Workorder: AVS 160 (4838) **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:

C. Carroll

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

4838007 (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: 4838001 **Date Collected:** 10/26/2022 13:20 **Matrix:** Groundwater
Sample ID: MW15S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**404**	mg/L	25	5	11/04/2022 14:08	11/04/2022 14:08	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.10**	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 09:49	MDE	MA,NDA	
Calcium	**4.27**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:10	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**14.4**	mg/L	2.0	1	10/31/2022 10:53	10/31/2022 10:53	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	10/28/2022 20:05	10/28/2022 20:05	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1880**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838002 **Date Collected:** 10/26/2022 12:40 **Matrix:** Groundwater
Sample ID: MW16S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**79.0**	mg/L	25	5	11/04/2022 14:09	11/04/2022 14:09	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.12**	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 09:55	MDE	MA,NDA	
Calcium	**3.26**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:13	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**22.6**	mg/L	2.0	1	10/31/2022 10:54	10/31/2022 10:54	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.83**	mg/L	0.1	1	10/28/2022 20:12	10/28/2022 20:12	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1180**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838003 **Date Collected:** 10/26/2022 11:45 **Matrix:** Groundwater
Sample ID: MW17S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**247**	mg/L	25	5	11/04/2022 14:10	11/04/2022 14:10	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	<0.1	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 09:56	MDE	MA,NDA	
Calcium	**3.59**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:15	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**15.0**	mg/L	2.0	1	10/31/2022 10:55	10/31/2022 10:55	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.38**	mg/L	0.1	1	10/28/2022 20:20	10/28/2022 20:20	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1740**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838004 **Date Collected:** 10/26/2022 09:34 **Matrix:** Groundwater
Sample ID: MW18S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**450**	mg/L	25	5	11/04/2022 14:12	11/04/2022 14:12	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	<0.1	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 09:58	MDE	MA,NDA	
Calcium	**3.60**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:17	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**8.8**	mg/L	2.0	1	10/31/2022 10:56	10/31/2022 10:56	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.17**	mg/L	0.1	1	10/28/2022 20:28	10/28/2022 20:28	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1730**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838005 **Date Collected:** 10/26/2022 10:55 **Matrix:** Groundwater
Sample ID: MW19S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**785**	mg/L	25	5	11/04/2022 14:13	11/04/2022 14:13	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.10**	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 10:00	MDE	MA,NDA	
Calcium	**3.97**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:20	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**18.2**	mg/L	2.0	1	10/31/2022 10:57	10/31/2022 10:57	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**0.64**	mg/L	0.1	1	10/28/2022 20:35	10/28/2022 20:35	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**2190**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838006 **Date Collected:** 10/26/2022 13:55 **Matrix:** Groundwater
Sample ID: MW20S **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**55.0**	mg/L	25	5	11/04/2022 14:14	11/04/2022 14:14	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.10**	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 10:01	MDE	MA,NDA	
Calcium	**4.20**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:26	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**26.2**	mg/L	2.0	1	10/31/2022 11:07	10/31/2022 11:07	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**1.14**	mg/L	0.1	1	10/28/2022 20:43	10/28/2022 20:43	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**1800**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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

Analytical Results

Lab ID: 4838007 **Date Collected:** 11/02/2022 **Matrix:** Groundwater
Sample ID: Dup **Date Received:** 10/27/2022 15:11 **Collector:** Client

Temp @ Receipt (C): 1.5

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Sulfate	**793**	mg/L	25	5	11/04/2022 14:15	11/04/2022 14:15	EJV	MA,NDA	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Boron	**0.10**	mg/L	0.1	1	10/31/2022 17:12	11/09/2022 10:03	MDE	MA,NDA	
Calcium	**3.93**	mg/L	1	1	10/31/2022 17:12	11/02/2022 14:32	MDE	MA,NDA	

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Chloride	**18.2**	mg/L	2.0	1	10/31/2022 11:08	10/31/2022 11:08	EJV	MA,NDA	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Fluoride	**0.64**	mg/L	0.1	1	10/28/2022 20:51	10/28/2022 20:51	AMC		

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Cert	Qual
Total Dissolved Solids	**2190**	mg/L	10	1	10/31/2022 15:30	10/31/2022 15:30	RAA	MA,NDA	

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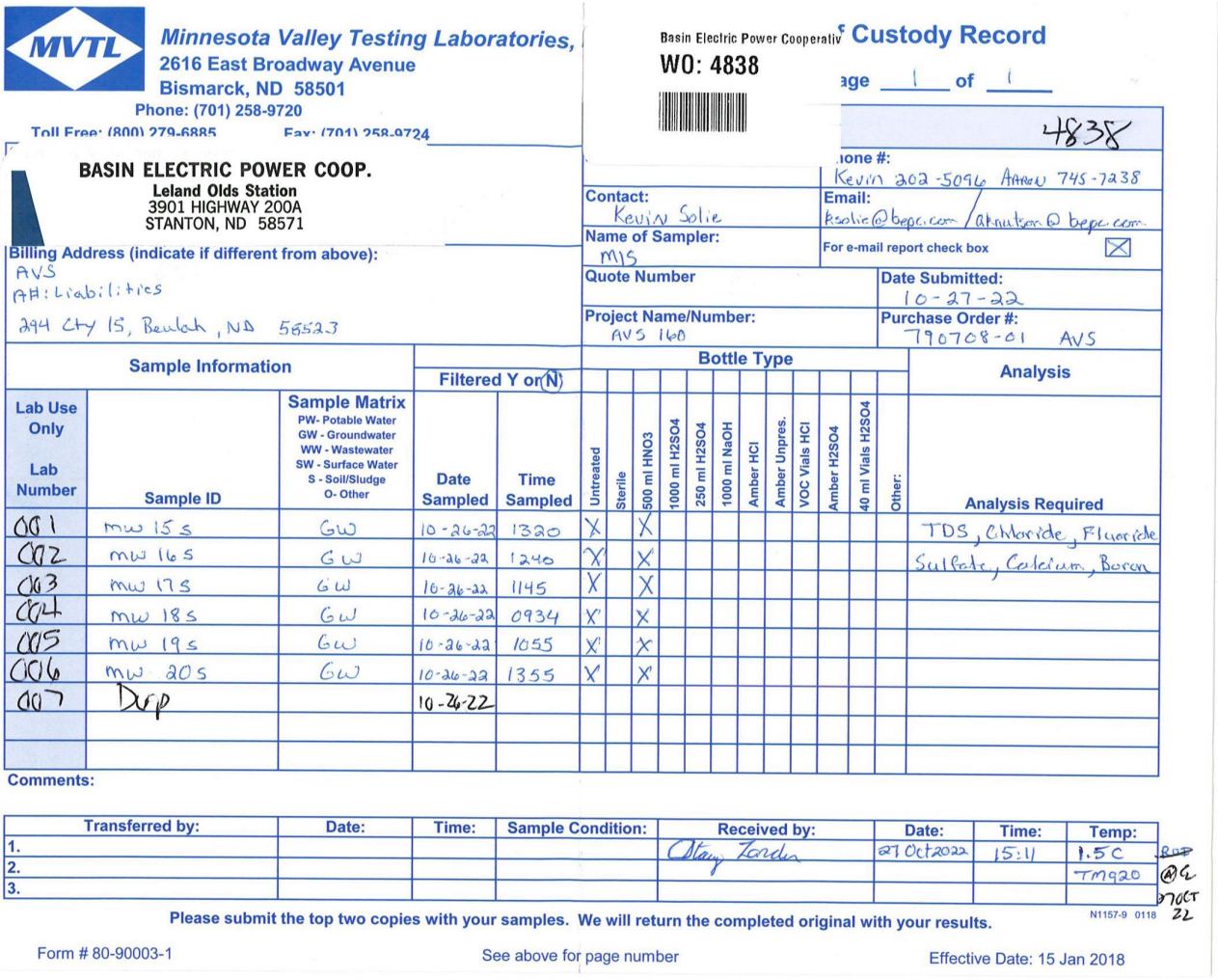
Account #: 2040 **Client:** Basin Electric Power Cooperative



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 Cooperativ **Custody Record**
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4838

BASIN ELECTRIC POWER COOP.
Leland Olds Station
3901 HIGHWAY 200A
STANTON, ND 58571

Billing Address (indicate if different from above):
AVS
AH: Liabilities
294 Cty 15, Beulah, ND 58523

Phone #: Kevin 202-5096 Aaron 745-7238
Contact: Kevin Solie
Email: ksolie@bepc.com / akmattson@bepc.com
Name of Sampler: MJS
For e-mail report check box ☒
Quote Number
Date Submitted: 10-27-22
Project Name/Number: AVS 160
Purchase Order #: 790708-01 AVS

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 15 s	GW	10-26-22	1320		X		X									TDS, Chloride, Fluoride
002	mw 16 s	GW	10-26-22	1240		X		X									Sulfate, Calcium, Boron
003	mw 17 s	GW	10-26-22	1145		X		X									
004	mw 18 s	GW	10-26-22	0934		X		X									
005	mw 19 s	GW	10-26-22	1055		X		X									
006	mw 20 s	GW	10-26-22	1355		X		X									
007	Drip		10-26-22														

Comments:

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	Time:	Temp:
1.				Otary Zander	27 Oct 2022	15:11	1.5 C
2.							TM920
3.							

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

N1157-9 0118

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

Attachment B

Input Data Files for Calculation of Upper and Lower Prediction Limits (2016-2020)

Attachment B
Input Data Files for Calcualtion of Upper and Lower Prediciton Limits
Background Wells: MW-18(S) and MW-19(S)
Antelope Valley Station - Beulah, ND

Event	Well ID	Sample Date	Sample Type	Sample Name	Boron	D_Boron	Calcium	D_Calcium	Chloride	D_Chloride	Fluoride	D_Fluoride	pH	D_pH	Sulfate	D_Sulfate	TDS	D_TDS
2016_07_July	MW-18(S)	7/13/2016	N	MW-18(S)-071316	0.11	1	12	1	5.6	1	1.2	1	9.97	1	370	1	1600	1
2017_02_Feb	MW-18(S)	2/24/2017	N	MW-18(S)-022417	0.2	0	21	1	30	0	5	0	9.85	1	330	1	1100	1
2017_03_Mar	MW-18(S)	3/21/2017	N	MW-18(S)-032117	0.2	0	21	1	15	0	2.5	0	9.34	1	360	1	1400	1
2017_04_Apr	MW-18(S)	4/20/2017	N	MW-18(S)-042017	0.2	0	13	1	15	0	2.5	0	10.03	1	390	1	1400	1
2017_05_May	MW-18(S)	5/23/2017	N	MW-18(S)-052317	0.2	0	12	1	5.4	1	1.7	1	8.86	1	350	1	1400	1
2017_06_Jun	MW-18(S)	6/28/2017	N	MW-18(S)-062817	0.2	0	12	1					9.1	1			1300	1
2017_07_Jul	MW-18(S)	7/24/2017	N	MW-18(S)-072417	0.2	0	12	1					8.91	1			1400	1
2017_08_Aug	MW-18(S)	8/17/2017	N	MW-18(S)-081717	0.2	0	9.7	1	5.4	1	1.8	1	8.92	1	370	1	1300	1
2017_10_Oct	MW-18(S)	10/10/2017	N	MW-18(S)-101017					5.6	1	1.6	1	9.05	1	360	1		
2017_10_Oct	MW-18(S)	10/12/2017	N	MW-18(S)-101217					5.8	1	1.9	1	9.14	1	360	1		
2018_04_Apr	MW-18(S)	4/25/2018	N	MW-18(S)-042518	0.14	1	10	1	7	1	2	1	9	1	320	1	1200	1
2018_10_Oct	MW-18(S)	10/10/2018	N	MW-18(S)_101018	0.136	1	8.6	1	6.8	1	1.85	1	9.35	1	319	1	1510	1
2019_05_May	MW-18(S)	5/21/2019	N	MW-18(S)-052119	0.136	1	9.85	1	7.99	1	2.06	1	8.89	1	282	1	1210	1
2019_10_Oct	MW-18(S)	10/16/2019	N	MW-18(S)-101619	0.127	1	9.56	1	6.31	1	1.6	1	9.33	1	263	1	1230	1
2020_06_June	MW-18(S)	6/11/2020	N	MW-18(S)_061120	0.118	1	13	1	4.94	1	1.29	1	9.95	1	346	1		
2020_10_Oct	MW-18(S)	10/28/2020	N	MW18 (5)_102820	0.12	1	5.93	1	4.65	1	1.28	1	9.11	1	356	1	1670	1
2016_07_July	MW-19(S)	7/13/2016	N	MW-19(S)-071316	0.11	1	13	1	12	1	0.5	1	7.93	1	680	1	1900	1
2017_02_Feb	MW-19(S)	2/2/2017	N	MW-19(S)-020217	0.2	0	5.4	1	12	1	0.58	1	7.8	1	670	1	2000	1
2017_02_Feb	MW-19(S)	2/24/2017	N	MW-19(S)-022417	0.2	0	5.5	1	12	1	0.56	1	7.73	1	700	1	2000	1
2017_03_Mar	MW-19(S)	3/21/2017	N	MW-19(S)-032117	0.2	0	6.9	1	15	0	2.5	0	7.77	1	690	1	1900	1
2017_04_Apr	MW-19(S)	4/20/2017	N	MW-19(S)-042017	0.2	0	5.9	1	15	0	2.5	0	8.8	1	630	1	2000	1
2017_05_May	MW-19(S)	5/23/2017	N	MW-19(S)-052317	0.2	0	5.6	1	11	1	0.51	1	7.61	1	630	1	2000	1
2017_06_Jun	MW-19(S)	6/28/2017	N	MW-19(S)-062817	0.2	0	5.7	1					7.59	1			1900	1
2017_07_Jul	MW-19(S)	7/24/2017	N	MW-19(S)-072417	0.2	0	5	1					7.33	1			1900	1
2017_08_Aug	MW-19(S)	8/17/2017	N	MW-19(S)-081717	0.2	0	4.9	1	12	1	0.64	1	7.4	1	620	1	1800	1
2017_10_Oct	MW-19(S)	10/10/2017	N	MW-19(S)-101017					12	1	0.56	1	7.73	1	660	1		
2017_10_Oct	MW-19(S)	10/12/2017	N	MW-19(S)-101217					12	1	0.65	1	7.8	1	670	1		
2018_04_Apr	MW-19(S)	4/25/2018	N	MW-19(S)-042518	0.16	1	4.6	1	12	1	0.63	1	8.05	1	660	1	2000	1
2018_10_Oct	MW-19(S)	10/10/2018	N	MW-19(S)_101018	0.154	1	4.34	1	12.7	1	0.56	1	8.63	1	669	1	2010	1
2019_05_May	MW-19(S)	5/21/2019	N	MW-19(S)-052119	0.147	1	4.02	1	13.1	1	0.605	1	7.38	1	683	1	2110	1
2019_10_Oct	MW-19(S)	10/16/2019	N	MW-19(S)-101619	0.144	1	3.97	1	12.7	1	0.532	1	8.37	1	666	1	2020	1
2020_06_June	MW-19(S)	6/11/2020	N	MW-19(S)_061120	0.142	1	3.94	1	10.6	1	0.559	1	7.95	1	642	1	1990	1
2020_10_Oct	MW-19(S)	10/28/2020	N	MW19 (6)_102820	0.155	1	4.48	1	11.3	1	0.588	1	7.8	1	707	1	2190	1