

# 2020 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

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# **List of Acronyms**

ACMs AECOM AVS Basin	Assessment of Corrective Measures AECOM Technical Services, Inc. Antelope Valley Station Basin Electric Power Cooperative
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
EPA	United States Environmental Protection Agency
FGD	Flue Gas Desulfurization
ft., amsl	feet above mean sea level
ft., bgs	feet below ground surface
GWPSs	groundwater protection standards
LPL	lower prediction limit
mg/L	milligrams per liter
mw	megawatts
RCRA	Resource Conservation and Recovery Act
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UCL	upper control limit
UPL	upper prediction limit

# **Executive Summary**

This report summarizes groundwater monitoring and corrective action activities completed between January 1 and December 31, 2020 at the Coal Combustion Residuals (CCR) Landfill at Antelope Valley Station (AVS), as required by 40 Code of Federal Regulations (CFR) Section 257.90(e) of the United States Environmental Protection Agency (USEPA) CCR Rule. The location of the CCR unit and program monitoring network for the CCR units, including supporting monitoring wells are illustrated on **Figures 1 and 2**, respectively. No program monitoring wells were modified or abandoned during the reporting period.

Detection-mode groundwater monitoring of the Landfill was initiated in 2018. Detection monitoring through October 2020 identified no statistically significant increases (SSIs) of Appendix III indicators of boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS) in the downgradient monitoring wellsMW-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 2020 annual reporting period include:

- Semiannual Detection-mode groundwater monitoring events were conducted in June and October. Monitoring involved sampling of two background monitoring wells and four downgradient monitoring wells.
- 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.
- Statistical evaluation of groundwater data for Appendix III indicators.

# 1. Introduction

On behalf of Basin Electric Power Cooperative, (Basin), AECOM has prepared the 2020 annual report documenting groundwater monitoring and corrective action for the Coal Combustion Residuals (CCR) Landfill at Basin's Antelope Valley Station (AVS).

Chapter 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. Chapter 2 summarizes CCR groundwater monitoring activities conducted prior to 2020. Chapter 3 summarizes the groundwater monitoring and corrective action activities completed in 2020, and references attachments to this report that contain detailed documentation of those activities. Chapter 4 provides general information including program transitions, problems encountered and anticipated activities in 2021. Chapter 5 summarizes the report content. Chapter 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 fourth annual report, and includes activities performed in calendar year 2020.

#### **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 (MW):

- Unit 1, with a rating of 450 MW, which began operating in 1984;
- Unit 2, with a rating of 450 MW, which began operating in 1986; and
- CCR produced at AVS includes fly ash, bottom ash, and flue gas desulfurization (FGD) waste.

### **CCR Unit Description**

CCR is disposed at AVS in the following CCR unit:

• Section 7 Ash Landfill 0160 (CCR Landfill)

The CCR Landfill is located northeast of the generating units and office complex, in an area of mine spoils identified as the Couteau Properties Freedom Mine (**Figure 1**). Basin reported that in 2020 the AVS CCR Landfill received approximately 876,667 tons of solid waste, including fly ash, FGD waste, and a minor contribution of solid debris.

#### **Physical Setting**

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

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

The base of the AVS CCR 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 trace very fine sand and beds of lignite typically ranging from 6- to 9-feet thick. The 2016 AECOM drilling investigation did not penetrate to depths great enough to expose 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 Lignite, located at depths ranging roughly from 180 to 260 feet below ground surface (ft., bgs). The potentiometric surface of the uppermost groundwater present within the Spaer is approximately 1893 feet above mean sea level (ft., amsl) in the western portion of the Landfill facility, sloping generally east to 1880 ft., amsl on the eastern side of the Landfill. The hydraulic conductivity measurements for the uppermost aquifer range from 1.65x10<sup>-4</sup> to 2.48x10<sup>-9</sup> centimeters per second (cm/s).

### 2. CCR Groundwater Monitoring Activity Prior to 2020

The regulatory process for CCR groundwater monitoring and corrective action is established by 40 Code of Federal Regulations (CFR) Sections 257.90 through 257.98. The process includes a phased approach to groundwater monitoring, 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 (ACMs) followed by selection of remedy and remedy implementation.

The following paragraphs provide a brief summary of CCR groundwater monitoring activities performed prior to 2020. CCR groundwater monitoring activities performed between January and December 2020 are discussed in Chapter 3.

Groundwater monitoring at AVS is performed using a network of monitoring wells that include both 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 hydrostratigraphic positions of the CCR monitoring wells selected for sampling background and downgradient groundwater quality for the AVS CCR Landfill are summarized below:

CCR unit	Background wells	Downgradient wells
Landfill	MW-18(S), MW-19(S)	MW-15(S), MW-16(S), MW-17(S), MW-20(S)

Monitoring well MW-14(S) is excluded from the groundwater monitoring network due to insufficient water production to obtain a representative sample. However, it remains in place for collection of groundwater level measurements for potential inclusion in the potentiometric evaluation of the AVS CCR Landfill.

Baseline Monitoring was initiated in August 2016, which involved sampling groundwater for Part 257 Appendix III and IV constituents over eight Baseline Detection Monitoring events.

Baseline Detection Monitoring events were performed in general accordance with procedures established in the sitespecific Sampling and Analysis Plan (AECOM 2018a), which is included in the facility's Operating Record. The Sampling and Analysis Plan 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 the baseline monitoring and 2018 Detection monitoring at the AVS CCR Landfill were presented and discussed in the First and Second Annual Groundwater Monitoring and Corrective Action Reports, respectively (AECOM 2018b and AECOM 2019). The AVS CCR Landfill was placed in Detection monitoring in the winter of 2018 with the first Detection monitoring at the AVS CCR Landfill in 2018 and 2019 were presented and discussed in the Second and Third Annual Groundwater Monitoring and Corrective Action Reports 31, 2019 (AECOM 2019) and January 31, 2020 (AECOM 2020), respectively.

# 3. CCR Groundwater Monitoring and Corrective Action Activities in 2020

This chapter summarizes the groundwater monitoring and corrective action conducted at the AVS CCR Landfill in 2020 to comply with the groundwater requirements of the CCR rule:

- Groundwater Detection monitoring activities:
  - monitoring system evaluation completed in June and October 2020
  - groundwater sampling completed in June and October 2020
  - laboratory analysis of groundwater samples in June and October 2020
  - Statistical analysis of the monitoring results of the groundwater samples in June and October 2020
- Groundwater Corrective Action Not applicable

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 AVS 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 AVS CCR Landfill monitoring system were found to be in good condition during the Detection monitoring events conducted in June and October 2020.

Potentiometric surface maps constructed using the depth-to-groundwater measurements obtained at the beginning of each Detection monitoring event are presented in **Attachment A**. The direction of groundwater flow observed in June and October 2020 was generally east, which is consistent with the direction observed in previous years. 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 completed in 2020 included analysis of collected groundwater samples for the constituents listed in Part 257 Appendix III. 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 velocities, and a tabulated summary of field measurements.

Sampling and analysis was performed in general accordance with procedures established in the Sampling and Analysis Plan (AECOM 2018a).

### **Statistical Procedures and Analysis**

The cumulative groundwater data collected for Appendix III indicator parameters at the AVS CCR Landfill were evaluated in accordance with the statistical procedures certified on October 17, 2017 (AECOM 2017).

The Appendix III groundwater quality 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

AVS CCR Landfill, monitoring wells MW-18(S) and MW-19(S) are designated as background wells because they are located upgradient of the AVS CCR Landfill, whereas the remaining monitoring wells [MW-15(S), MW-16(S), MW-17(S), and MW-20(S)] are located downgradient of the facility.

Prediction limits (i.e., parametric or nonparametric) with retesting were developed for each constituent based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. For the statistical analysis, non-detect values were represented as one-half the detection limit. No outliers were identified in the background data. Analytical data from the background monitoring wells collected between July 2016 and October 2020 were used to develop an upper prediction limit (UPL) for all Appendix III constituents, and a lower prediction limit (LPL) for pH, at 95 percent confidence.

Data from the downgradient monitoring wells for the same time period were compared to the UPL or LPL to identify statistically significant increases (SSIs) over background. Mann-Kendall trend analysis was used to identify statistically significant increasing trends for constituents with SSIs. ProUCL Version 5.1 was used to store the background data and run the statistical analyses.

The statistical analysis results indicate that none of the Appendix III parameters (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids [TDS]) currently exhibit SSIs over background. The analysis also indicated that pH did not exhibit an SSI below background. The results of the analyses, including the UPLs and LPL, are provided in **Table 1**.

Chloride was further evaluated using a control chart provided as **Figure 3**. 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<sup>1</sup>; EPA 2009<sup>2</sup>; and ASTM 2017<sup>3</sup> suggest using 4.5 standard deviations to develop control limits for groundwater detection monitoring. A control chart that shows the background mean (10.72 milligrams per liter [mg/L]), UCL (33.70) 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 2020. The results depicted on **Figure 3** 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 a SSI over background at any of the downgradient compliance wells.

Based on these results, assessment monitoring is not required at the AVS. Detection monitoring should continue at the site in 2021.

<sup>&</sup>lt;sup>1</sup> Starks, T.H., 1988, Evaluation of Control Chart Methodologies for RCRA Waste Sites, U.S. Environmental Protection Agency EPA/600/4-88/040, December, 40 pp.

<sup>&</sup>lt;sup>2</sup> U.S. Environmental Protection Agency, 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance, EPA-530-R-09-007, March, 884 pp.

<sup>&</sup>lt;sup>3</sup> ASTM (American Society of Testing and Materials), 2017, Designation D6312-17 Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities, 15 pp.

### 4. General Information

The following subsections summarize any problems encountered in the AVS CCR Landfill program through 2020, any resolutions to those problems, if needed, and upcoming actions planned for 2021.

#### **Program Transitions 2020**

There were no groundwater monitoring program transitions for the AVS CCR Landfill monitoring system during the January – December 2020 reporting period.

#### **Problems Encountered**

No problems were encountered during the January – December 2020 reporting period.

#### **Actions Planned for 2021**

Basin plans on continuing the Detection Monitoring program for the AVS CCR Landfill in 2021. The Detection Monitoring program will include semi-annual groundwater sampling events and the required statistical evaluations.

# **5. Summary and Conclusions**

Basin conducted two rounds of CCR groundwater Detection monitoring at the AVS CCR Landfill between January and December 2020. The 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 AVS CCR Landfill. Detection Monitoring will continue at the site in 2021.

# 6. References

- AECOM. 2017. CCR Groundwater Monitoring System Report, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. October 2017.
- AECOM. 2018a. Sampling and Analysis Plan, CCR Monitoring Program, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2018.
- AECOM. 2018b. First Annual Groundwater Monitoring and Corrective Action Report, 2016-2017, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2018.
- AECOM. 2019. Second Annual Groundwater Monitoring and Corrective Action Report, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2019.
- AECOM. 2020. Third Annual Groundwater Monitoring and Corrective Action Report, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2020.
- U.S. Environmental Protection Agency. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA 530-R-09-007. March 2009. 884 pp.

# **Figures**





#### Figure 3. Chloride Control Chart 2020 Antelope Valley Station



# Table

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

Parameter (Units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Method	Background Limit
Boron (mg/L)	31	48	Yes/Yes	Parametric 95% UPL	0.17
Calcium (mg/L)	31	0	No/Yes	Parametric 95% UPL	17
Chloride (mg/L)	31	16	Yes/No	Control Chart 99.9% UCL	33.7
Fluoride (mg/L)	31	16	No/No	Nonparametric 95% UPL	3.5
pH (std units)	35	0	No/No	Nonparametric 95% UPL/LPL	9.98/6.77
Sulfate (mg/L)	31	0	No/No	Nonparametric 95% UPL	703
TDS (mg/L)	31	0	No/No	Nonparametric 95% UPL	2,142

### Attachment A Sampling and Analysis Report, 2020 CCR Monitoring Program



# 2020 Sampling and Analysis Report AVS Landfill CCR Monitoring Program

Antelope Valley Station Beulah, North Dakota

**Basin Electric Power Cooperative** 

January 31, 2021

Prepared for:

Basin Electric Power Cooperative Bismarck, North Dakota

Prepared by:

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Project 60635022

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Table 3	2020 Analytical Results Summary

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Appendix I Laboratory Reports

# **List of Acronyms**

AECOM Technical Services, Inc.
Antelope Valley Station
Basin Electric Power Cooperative
Coal Combustion Residuals
Code of Federal Regulations
United States Environmental Protection Agency
Quality assurance/quality control

# 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 2020 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 2020.

### 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 **Table 1**, 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 subject CCR unit. **Figure 1** and **Figure 2** represent potentiometric surface maps constructed using measurements taken on June 10, 2020 and October 27, 2020, respectively. The maps show the inferred groundwater flow directions for the CCR unit. 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 are as follows:

CCR unit	Background wells	Downgradient wells
Landfill	MW-18(S), MW-19(S)	MW15(S), MW-16(S), MW-17(S), MW-20(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 2020.

### 3. Groundwater Quality

The analytical testing laboratory provided reports presenting the results of laboratory analysis for each 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 (QA/QC) testing results provided by the laboratory. The results were compiled into summary form as presented in **Table 3**.

# Figures





# **Tables**

#### TABLE 1

#### 2020 GROUNDWATER MONITORING WATER LEVELS AND ELEVATIONS CCR PROGRAM MONITORING WELLS ANTELOPE VALLEY STATION CCR LANDFILL- BEULAH, ND

Well ID	Reference Elevation Top of Casing	June 10, 2020 Depth to Water	June 10, 2020 Groundwater	October 27, 2020 Depth to Water	October 27, 2020 Groundwater
	(leet, NAVD 66)	(leet)	(feet, NAVD 88)	(leet)	(feet, NAVD 88)
MW-14(S)	2093.54	Not Measured	Not Measured	Not Measured	Not Measured
MW-15(S)	2104.89	218.80	1886.09	219.46	1885.43
		000.40	1007.00		4000.45
MW-16(S)	2123.70	236.42	1887.28	237.25	1886.45
MW-17(S)	2125.06	238.30	1886.76	239.02	1886.04
MW-18(S)	2091.70	198.58	1893.12	198.92	1892.78
M)A/ 40/S)	2042.68	140.05	1002.02	140.24	1902.24
14144-19(2)	2042.08	146.85	1093.83	149.34	1093.34
MW-20(S)	2107.57	220.25	1887.32	221.00	1886.57

Notes:

NAVD 88 - North American Verticle Datum 1988

#### TABLE 2

Date of event	d <sub>i</sub> (ft)	d <sub>h</sub> (ft)	i (ft/ft)	n <sub>e</sub>	K (ft/day)	v <sub>s</sub> (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

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

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

d<sub>h</sub> = Change in hydraulic head between upgradient and downgradient locations

i = Hydraulic gradient (change in elevation over distance)

ne = 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<sub>s</sub> = Seepage Velocity (ft/day)

Hydraulic Gradient Governing Equation<sup>1</sup> –  $i = -\frac{dh}{dl}$ 

Seepage Velocity Governing Equation<sup>2</sup> –  $v_s = -K * i / n_e$ 

#### Table 3

#### 2020 Analytical Results Summary AVS Landfill CCR Monitoring Well Network Antelope Valley Station Landfill - Beulah, North Dakota

			Appendix III Constituents						
Wall ID	Event	Data	Boron	Calcium	Chloride	Fluoride	рН	Sulfate	Total Dissolved Solids
MW-15(S)		6/11/2020	0.142	9.57	8.53	1 14	7 79	391	1840
MW-16(S)	June 2020	6/11/2020	0.136	3.61	14.0	1.62	9.1	70.3	1330
MW-17(S)	June 2020	6/11/2020	0.162	6.68	9.84	1.10	8.07	248	1710
MW-18(S)	June 2020	6/11/2020	0.118	13.0	4.94	1.29	9.95	346	44.0
MW-18(S) Dup	June 2020	6/11/2020	0.123	13.2	5.08	1.37		330	1460
MW-19(S)	June 2020	6/11/2020	0.142	3.94	10.6	0.559	7.95	642	1990
MW-20(S)	June 2020	6/11/2020	0.148	6.17	19.6	0.960	8.01	73.0	1810
MW-15(S)	October 2020	10/28/2020	0.147	6.31	8.37	1.18	7.8	357	1900
MW-16(S)	October 2020	10/28/2020	0.143	3.48	15.8	2.26	8.96	84.9	1330
MW-17(S)	October 2020	10/28/2020	0.16	5.6	9.82	1.29	8.4	224	1770
MW-18(S)	October 2020	10/28/2020	0.12	5.93	4.65	1.28	9.11	356	1670
MW-19(S)	October 2020	10/28/2020	0.155	4.48	11.3	0.588	7.8	707	2190
MW-19(S) Dup	October 2020	10/28/2020	0.153	4.43	11.7	0.592		690	2150
MW-20(S)	October 2020	10/28/2020	0.151	6.83	19.5	1.05	7.77	69.5	1940

Notes:

TDS = Total Dissolved Solids

mg/L = milligrams per liter

S.U. = Standard units

pCi/L = picoCurie/liter

**Appendix I: Laboratory Reports** 

# 🛟 eurofins

# Environment Testing America

# **ANALYTICAL REPORT**

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

### Laboratory Job ID: 280-137631-1

Client Project/Site: AVS Landfill

#### For:

AECOM Technical Services Inc. 525 Vine Street Suite 1800 Cincinnati, Ohio 45202

Attn: Mr. Jason Lach

Darlene Bandy

Authorized for release by: 6/26/2020 10:18:03 AM

Darlene Bandy, Project Manager I (303)736-0188 darlene.bandy@testamericainc.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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# Qualifiers

General C	hemistry
Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

# Glossary

MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.	E
Result exceeded calibration range.	J
Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
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	
Percent Recovery	8
Contains Free Liquid	
Colony Forming Unit	9
Contains No Free Liquid	
Duplicate Error Ratio (normalized absolute difference)	
Dilution Factor	
Detection Limit (DoD/DOE)	
Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
Decision Level Concentration (Radiochemistry)	
Estimated Detection Limit (Dioxin)	
Limit of Detection (DoD/DOE)	12
Limit of Quantitation (DoD/DOE)	
EPA recommended "Maximum Contaminant Level"	
Minimum Detectable Activity (Radiochemistry)	
Minimum Detectable Concentration (Radiochemistry)	
Method Detection Limit	
Minimum Level (Dioxin)	
Most Probable Number	
Method Quantitation Limit	
Not Calculated	
Not Detected at the reporting limit (or MDL or EDL if shown)	
Negative / Absent	
Positive / Present	
Practical Quantitation Limit	
Presumptive	
Quality Control	
Relative Error Ratio (Radiochemistry)	
Reporting Limit or Requested Limit (Radiochemistry)	
Relative Percent Difference, a measure of the relative difference between two points	
Toxicity Equivalent Factor (Dioxin)	
Toxicity Equivalent Quotient (Dioxin)	
Too Numerous To Count	
	Mis, MsD. The analyte present in the original sample is greater than 4 times the matrix spike concentration, therefore, control limits are not applicable. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.  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 Percent Recovery Contains Free Liquid Colony Forming Unit Contains Free Liquid Duplicate Error Ratio (normalized absolute difference) Dilution Factor Detection Limit (DoD/DOE) Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample Decision Level Concentration (Radiochemistry) Estimated Detection Limit (DoX/DOE) Limit of Detection Limit (Dixin) Limit of Detection Limit (Dixin) Minimum Detectable Cancentration (Radiochemistry) Method Quantitation Limit Minimum Level (Dixin) Minimum Detectable Cancentration (Radiochemistry) Method Quantitation Limit Not Calculated Maximum Evel (Dixin) Minimum Detectable Cancentration (Radiochemistry) Method Quantitation Limit Presumptive Muser (Dixin) Method Quantitation Limit Presumptive Muser and the reporting limit (or MDL or EDL if shown) Negative / Absent Present Prese

#### Job ID: 280-137631-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

## Job ID: 280-137631-1

# CASE NARRATIVE

# Client: AECOM Technical Services Inc.

# **Project: AVS Landfill**

# Report Number: 280-137631-1

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.

#### <u>RECEIPT</u>

The samples were received on 6/12/2020 2:12 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.6° C.

#### TOTAL METALS (ICP)

Samples MW-18(S) (280-137631-1), DUP-3 (280-137631-2), MW-19(S) (280-137631-3), MW-17(S) (280-137631-4), MW-16(S) (280-137631-5), MW-20(S) (280-137631-6) and MW-15(S) (280-137631-7) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/17/2020 and analyzed on 06/20/2020.

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

#### TOTAL DISSOLVED SOLIDS

Samples MW-18(S) (280-137631-1), DUP-3 (280-137631-2), MW-19(S) (280-137631-3), MW-17(S) (280-137631-4), MW-16(S) (280-137631-5), MW-20(S) (280-137631-6) and MW-15(S) (280-137631-7) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/15/2020.

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

#### ANIONS (28 DAYS)

Samples MW-18(S) (280-137631-1), DUP-3 (280-137631-2), MW-19(S) (280-137631-3), MW-17(S) (280-137631-4), MW-16(S) (280-137631-5), MW-20(S) (280-137631-6) and MW-15(S) (280-137631-7) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 06/23/2020 and 06/24/2020.

Samples MW-18(S) (280-137631-1)[5X], DUP-3 (280-137631-2)[5X], MW-19(S) (280-137631-3)[10X], MW-17(S) (280-137631-4)[5X] and MW-15(S) (280-137631-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Sulfate failed the recovery criteria high for the 1x analysis MSD of sample MW-15(S) (280-137631-7) in batch 280-499766. Refer to the QC report for details. The presence of the '4' qualifier indicates that the analyte present in the original sample is greater than 4 times the amount in the spike. In addition, this analyte was over the calibration range for the 1x dilution of the parent sample, the MS, and the MSD. Sulfate is reported from the 5x dilution for this sample.

# Job ID: 280-137631-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

# **Detection Summary**

# Client Sample ID: MW-18(S)

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# Lab Sample ID: 280-137631-1

Lab Sample ID: 280-137631-2

Lab Sample ID: 280-137631-3

Lab Sample ID: 280-137631-4

Lab Sample ID: 280-137631-5

Lab Sample ID: 280-137631-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Calcium	13.0		0.200	0.0778	mg/L		6010C	Total/NA
Boron	0.118		0.100	0.00437	mg/L	1	6010C	Total/NA
Chloride	4.94		3.00	1.02	mg/L	1	9056A	Total/NA
Fluoride	1.29		0.500	0.165	mg/L	1	9056A	Total/NA
Sulfate	346		25.0	5.15	mg/L	5	9056A	Total/NA
Total Dissolved Solids (TDS)	44.0		10.0	4.70	mg/L	1	SM 2540C	Total/NA

#### **Client Sample ID: DUP-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D Method	Prep Type
Calcium	13.2		0.200	0.0778	mg/L	1	6010C	Total/NA
Boron	0.123		0.100	0.00437	mg/L	1	6010C	Total/NA
Chloride	5.08		3.00	1.02	mg/L	1	9056A	Total/NA
Fluoride	1.37		0.500	0.165	mg/L	1	9056A	Total/NA
Sulfate	330		25.0	5.15	mg/L	5	9056A	Total/NA
Total Dissolved Solids (TDS)	1460		10.0	4.70	mg/L	1	SM 2540C	Total/NA

# Client Sample ID: MW-19(S)

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	Method	Prep Type
Calcium	3.94		0.200	0.0778	mg/L	1	6010C	Total/NA
Boron	0.142		0.100	0.00437	mg/L	1	6010C	Total/NA
Chloride	10.6		3.00	1.02	mg/L	1	9056A	Total/NA
Fluoride	0.559		0.500	0.165	mg/L	1	9056A	Total/NA
Sulfate	642		50.0	10.3	mg/L	10	9056A	Total/NA
Total Dissolved Solids (TDS)	1990		10.0	4.70	mg/L	1	SM 2540C	Total/NA

# Client Sample ID: MW-17(S)

#### Analyte **Result Qualifier** RL MDL Unit Dil Fac D Method Prep Type Calcium Total/NA 6.68 0.200 0.0778 mg/L 6010C 1 Boron 0.162 0.100 0.00437 mg/L 6010C Total/NA 1 Chloride 9.84 3.00 1.02 mg/L 1 9056A Total/NA Fluoride 1.10 0.500 0.165 mg/L 1 9056A Total/NA Sulfate 248 25.0 5.15 mg/L 5 9056A Total/NA Total Dissolved Solids (TDS) 1710 10.0 4.70 mg/L 1 SM 2540C Total/NA

# Client Sample ID: MW-16(S)

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	3.61		0.200	0.0778	mg/L	1	_	6010C	Total/NA
Boron	0.143		0.100	0.00437	mg/L	1		6010C	Total/NA
Chloride	14.0		3.00	1.02	mg/L	1		9056A	Total/NA
Fluoride	1.62		0.500	0.165	mg/L	1		9056A	Total/NA
Sulfate	70.3		5.00	1.03	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1330		10.0	4.70	mg/L	1		SM 2540C	Total/NA

# Client Sample ID: MW-20(S)

Analyte	Result C	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	6.17	(	0.200	0.0778	mg/L	1	_	6010C	Total/NA
Boron	0.148	(	0.100	0.00437	mg/L	1		6010C	Total/NA
Chloride	19.6		3.00	1.02	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

# Client Sample ID: MW-20(S) (Continued)

# Job ID: 280-137631-1

# Lab Sample ID: 280-137631-6

Analyte	Result C	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.960		0.500	0.165	mg/L	1	_	9056A	Total/NA
Sulfate	73.0		5.00	1.03	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1810		10.0	4.70	mg/L	1		SM 2540C	Total/NA

# Client Sample ID: MW-15(S)

# Lab Sample ID: 280-137631-7

 Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	9.57		0.200	0.0778	mg/L	1	_	6010C	Total/NA
Boron	0.142		0.100	0.00437	mg/L	1		6010C	Total/NA
Chloride	8.53		3.00	1.02	mg/L	1		9056A	Total/NA
Fluoride	1.14		0.500	0.165	mg/L	1		9056A	Total/NA
Sulfate	391		25.0	5.15	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1840		10.0	4.70	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

# **Method Summary**

#### Client: AECOM Technical Services Inc. Project/Site: 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
3010A	Preparation, Total 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 TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

6/26/2020

# Sample Summary

#### Client: AECOM Technical Services Inc. Project/Site: AVS Landfill

Lab Sample ID Client Sample ID Matrix Collected Red	ceived Asset ID
280-137631-1 MW-18(S) Water 06/11/20 10:20 06/12	/20 14:12
280-137631-2 DUP-3 Water 06/11/20 00:00 06/12	/20 14:12
280-137631-3 MW-19(S) Water 06/11/20 11:30 06/12	/20 14:12
280-137631-4 MW-17(S) Water 06/11/20 11:55 06/12	/20 14:12
280-137631-5 MW-16(S) Water 06/11/20 12:10 06/12	/20 14:12
280-137631-6 MW-20(S) Water 06/11/20 12:45 06/12	/20 14:12
280-137631-7 MW-15(S) Water 06/11/20 13:00 06/12	/20 14:12

Job ID: 280-137631-1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-18(S) Date Collected: 06/11/20 10:20 Data Baseived: 06/12/20 14:42							Lab Sam	ple ID: 280-13 Matrix:	7631-1 Water
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	13.0		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 06:53	1
Boron	0.118		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 06:53	1
Client Sample ID: DUP-3							Lab Sam	ole ID: 280-13	7631-2
Date Collected: 06/11/20 00:00								Matrix	Water
Date Received: 06/12/20 14:12	Pocult	Qualifier	DI	МП	Unit	п	Propared	Analyzod	Dil Eac
	13.2		0.200	0.0778	ma/l		06/17/20 09:00	06/20/20 07:10	1
Boron	0.123		0.100	0.00437	ma/L		06/17/20 09:00	06/20/20 07:10	1
					5				
Client Sample ID: MW-19(S) Date Collected: 06/11/20 11:30 Date Received: 06/12/20 14:12							Lab Sam	ple ID: 280-13 Matrix:	7631-3 Water
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	3.94		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 07:13	1
Boron	0.142		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:13	1
Client Sample ID: MW-17(S)							Lab Sam	ole ID: 280-13	7631-4
Date Collected: 06/11/20 11:55								Matrix	Water
Analyte	Result	Qualifier	RI	мы	Unit	р	Prepared	Analyzed	Dil Fac
Calcium	6.68		0.200	0.0778	ma/L		06/17/20 09:00	06/20/20 07:17	1
Boron	0.162		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:17	1
					0				
Client Sample ID: MW-16(S)							Lab Sam	ole ID: 280-13	7631-5
Date Collected: 06/11/20 12:10								Matrix	: Water
Date Received: 06/12/20 14:12	<b>D</b>	0			11	-	Durand	A	<b>D</b> !! <b>F</b>
	Result	Qualifier	RL -	MDL		D	Prepared		
Calcium	3.01		0.200	0.0770	mg/L		06/17/20 09:00	06/20/20 07:34	1
Богон	0.145		0.100	0.00437	mg/L		00/17/20 09:00	00/20/20 07.34	
Client Sample ID: MW-20(S)							Lab Sam	ole ID: 280-13	7631-6
Date Collected: 06/11/20 12:45								Matrix	: Water
Date Received: 06/12/20 14:12									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	6.17		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 07:37	1
Boron	0.148		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:37	1
Client Sample ID: MW-15(S)							Lab Sam	ole ID: 280-13	7631-7
Date Collected: 06/11/20 13:00								Matrix	Water
Date Received: 06/12/20 14:12									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	9.57		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 07:40	1

RL

3.00

0.500

25.0

10.0

RL

3.00

0.500

25.0

10.0

**Result Qualifier** 

**Result Qualifier** 

4.94

1.29

346

44.0

5.08

1.37

330

1460

MDL Unit

1.02 mg/L

0.165 mg/L

5.15 mg/L

4.70 mg/L

MDL Unit

1.02 mg/L

0.165 mg/L

5.15 mg/L

4.70 mg/L

**General Chemistry** 

Analyte

Chloride

Fluoride

Sulfate

Analyte

Chloride

Fluoride

Sulfate

Client Sample ID: MW-18(S)

**Total Dissolved Solids (TDS)** 

**Client Sample ID: DUP-3** 

**Total Dissolved Solids (TDS)** 

Client Sample ID: MW-19(S)

Client Sample ID: MW-17(S)

Client Sample ID: MW-16(S)

Date Collected: 06/11/20 12:10

Data Dessived: 06/42/20 44:42

Date Collected: 06/11/20 11:55

Date Collected: 06/11/20 11:30

Date Collected: 06/11/20 00:00

Date Received: 06/12/20 14:12

Date Collected: 06/11/20 10:20

Date Received: 06/12/20 14:12

Analyzed

06/23/20 15:48

06/23/20 15:48

06/15/20 15:11

# Lab Sample ID: 280-137631-1 Matrix: Water Dil Fac 1

	00/20/20 10.40	•	
	06/24/20 16:39	5	
	06/15/20 15:15	1	
Lab San	nple ID: 280-13 Matrix:	7631-2 Water	8
Proparod	Analyzed	Dil Fac	9
repareu	/		
repared	06/23/20 16:04	1	
Tepareu	06/23/20 16:04 06/23/20 16:04	<u> </u>	10
	06/23/20 16:04 06/23/20 16:04 06/24/20 16:56	1 1 5	10

Lab Sample ID: 280-137631-3 Matrix: Water

Prepared

Prepared

D

D

Date Received: 06/12/20 14:12									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.6		3.00	1.02	mg/L			06/23/20 16:20	1
Fluoride	0.559		0.500	0.165	mg/L			06/23/20 16:20	1
Sulfate	642		50.0	10.3	mg/L			06/24/20 17:12	10
Total Dissolved Solids (TDS)	1990		10.0	4.70	mg/L			06/15/20 15:15	1

#### Lab Sample ID: 280-137631-4 Matrix: Water

Date Received: 06/12/20 14:12									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.84		3.00	1.02	mg/L			06/23/20 16:37	1
Fluoride	1.10		0.500	0.165	mg/L			06/23/20 16:37	1
Sulfate	248		25.0	5.15	mg/L			06/24/20 19:07	5
Total Dissolved Solids (TDS)	1710		10.0	4.70	mg/L			06/15/20 15:15	1

#### Lab Sample ID: 280-137631-5 **Matrix: Water**

Lab Sample ID: 280-137631-6

Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
14.0		3.00	1.02	mg/L			06/23/20 16:53	1
1.62		0.500	0.165	mg/L			06/23/20 16:53	1
70.3		5.00	1.03	mg/L			06/23/20 16:53	1
1330		10.0	4.70	mg/L			06/15/20 15:15	1
	Result 14.0 1.62 70.3 1330	Result         Qualifier           14.0	Result         Qualifier         RL           14.0         3.00           1.62         0.500           70.3         5.00           1330         10.0	Result         Qualifier         RL         MDL           14.0         3.00         1.02           1.62         0.500         0.165           70.3         5.00         1.03           1330         10.0         4.70	Result         Qualifier         RL         MDL         Unit           14.0         3.00         1.02         mg/L           1.62         0.500         0.165         mg/L           70.3         5.00         1.03         mg/L           1330         10.0         4.70         mg/L	Result         Qualifier         RL         MDL         Unit         D           14.0         3.00         1.02         mg/L         D           1.62         0.500         0.165         mg/L         D           70.3         5.00         1.03         mg/L         D           1330         10.0         4.70         mg/L         D	Result         Qualifier         RL         MDL         Unit         D         Prepared           14.0         3.00         1.02         mg/L         D         Prepared           1.62         0.500         0.165         mg/L         Frepared         D         Prepared           70.3         5.00         1.03         mg/L         Frepared         D         Prepared           1330         10.0         4.70         mg/L         Frepared         Frepared         Frepared	Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed           14.0         3.00         1.02         mg/L         0         06/23/20 16:53           1.62         0.500         0.165         mg/L         06/23/20 16:53           70.3         5.00         1.03         mg/L         06/23/20 16:53           1330         10.0         4.70         mg/L         06/15/20 15:15

#### Client Sample ID: MW-20(S) Date Collected: 06/11/20 12:45 Date Received: 06/12/20 14:12

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.6		3.00	1.02	mg/L			06/23/20 17:10	1
Fluoride	0.960		0.500	0.165	mg/L			06/23/20 17:10	1
Sulfate	73.0		5.00	1.03	mg/L			06/23/20 17:10	1
Total Dissolved Solids (TDS)	1810		10.0	4.70	mg/L			06/15/20 15:15	1

Matrix: Water

# **General Chemistry**

Client Sample ID: MW-15(S) Date Collected: 06/11/20 13:00 Date Received: 06/12/20 14:12							Lab Sam	ple ID: 280-13 Matrix:	7631-7 Water
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.53		3.00	1.02	mg/L			06/23/20 17:26	1
Fluoride	1.14		0.500	0.165	mg/L			06/23/20 17:26	1
Sulfate	391		25.0	5.15	mg/L			06/24/20 19:23	5
Total Dissolved Solids (TDS)	1840		10.0	4.70	mg/L			06/15/20 15:15	1

6/26/2020

# Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-499 Matrix: Water Analysis Batch: 499563	8858/1-A									C	lie	ent Samp	ole ID: Mo Prep Typ Prep Ba	ethod I be: Tot tch: 49	Blank al/NA 98858
		MB	МВ												
Analyte	Re	sult	Qualifier		RL	I	MDL	Unit		D	Ρ	repared	Analyz	ed	Dil Fac
Calcium		ND			0.200	0.0	0778	mg/L		- 0	6/1	7/20 09:00	06/20/20	06:46	1
Boron		ND			0.100	0.00	0437	mg/L		0	6/1	7/20 09:00	06/20/20	06:46	1
Lab Sample ID: LCS 280-49	98858/2-A								Cli	ent S	Sar	mple ID:	Lab Con	trol Sa	mple
Matrix: Water													Prep Typ	e: Tot	al/NA
Analysis Batch: 499563				Spike		LCS	LCS	i					Prep Ba %Rec.	tch: 49	8858
Analyte				Added		Result	Qua	lifier	Unit		D	%Rec	Limits		
Calcium				50.0		51.70			mg/L		_	103	90 - 111		
Boron				1.00		0.9993			mg/L			100	86 - 110		
Lab Sample ID: 280-137631	I-1 MS											Client S	Sample IC	): MW-	18(S)
Matrix: Water													Prep Typ	e: Tot	al/NA
Analysis Batch: 499563													Prep Ba	tch: 49	8858
	Sample	Sam	ple	Spike		MS	MS						%Rec.		
Analyte	Result	Qua	lifier	Added		Result	Qua	lifier	Unit		D	%Rec	Limits		
Calcium	13.0			50.0		64.39			mg/L		_	103	48 - 153		
Boron	0.118			1.00		1.122			mg/L			100	87 - 113		
Lab Sample ID: 280-137631	I-1 MSD											Client S	Sample IC	): MW-	18(S)
Matrix: Water													Prep Typ	e: Tot	al/NA
Analysis Batch: 499563													Prep Ba	tch: 49	8858
	Sample	Sam	ple	Spike		MSD	MSE	)					%Rec.		RPD
Analyte	Result	Qua	lifier	Added		Result	Qua	lifier	Unit		D	%Rec	Limits	RPD	Limit
Calcium	13.0			50.0		63.90			mg/L		_	102	48 - 153	1	20
Boron	0.118			1.00		1.116			mg/L			100	87 - 113	1	20

# Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-4997 Matrix: Water Analysis Batch: 499766	66/6						Client Sam	ple ID: Method Prep Type: To	l Blank otal/NA
·	МВ	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.02	mg/L			06/23/20 10:59	1
Fluoride	ND		0.500	0.165	mg/L			06/23/20 10:59	1
Sulfate	ND		5.00	1.03	mg/L			06/23/20 10:59	1
Lab Sample ID: LCS 280-4997	766/4					Client	Sample ID:	: Lab Control S	Sample

#### Lab Sample ID: LCS 280-499766/4 Matrix: Water Analysis Batch: 499766

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride		93.19		mg/L		93	90 - 110	
Fluoride	5.00	5.016		mg/L		100	90 - 110	
Sulfate	100	91.01		mg/L		91	90 - 110	

Prep Type: Total/NA

Job ID: 280-137631-1

# Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-499766/5 Matrix: Water Analysis Batch: 499766			C	Client Sa	ample	ID: Lat	Control Prep Ty	Sample pe: Tot	e Dup al/NA
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	100	93.10		mg/L		93	90 - 110	0	10
Fluoride	5.00	5.018		mg/L		100	90 <sub>-</sub> 110	0	10
Sulfate	100	90.78		mg/L		91	90 - 110	0	10
Lab Sample ID: MRL 280-499766/3 Matrix: Water Analysis Batch: 499766				Clie	nt Sar	nple ID	: Lab Cor Prep Ty	itrol Sa pe: Tot	ample al/NA
	Spike	MRL	MRL				%Rec.		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chlorido	5.00	4 004		ma/l		- 92	50 150		

Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	5.00	4.094		mg/L		82	50 - 150	
Fluoride	0.500	0.5083		mg/L		102	50 <sub>-</sub> 150	
Sulfate	5.00	4.413	J	mg/L		88	50 - 150	

#### Lab Sample ID: 280-137631-7 MS Matrix: Water Analysis Batch: 499766

-	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	8.53		50.0	59.63		mg/L		102	80 - 120	 
Fluoride	1.14		5.00	6.481		mg/L		107	80 - 120	
Sulfate	442	E	50.0	501.9	E 4	mg/L		119	80 - 120	

#### Lab Sample ID: 280-137631-7 MSD **Matrix: Water**

Analysis Batch: 499766

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	8.53		50.0	59.57		mg/L		102	80 - 120	0	20
Fluoride	1.14		5.00	6.538		mg/L		108	80 - 120	1	20
Sulfate	442	E	50.0	503.1	E 4	mg/L		121	80 - 120	0	20

#### Lab Sample ID: 280-137631-7 DU Matrix: Water

Analysis Batch: 499766

	Sample S	Sample	D	JDU					RPD
Analyte	Result C	Qualifier	Resu	t Qualifie	r Unit		D	RPD	Limit
Chloride	8.53		8.56	3	mg/L			0.4	15
Fluoride	1.14		1.14	5	mg/L			0.2	. 15
Sulfate	442 E	Ē	442.	8 E	mg/L			0.1	15
Lab Sample ID: MB 280-499 Matrix: Water	923/6					0	Client Sam	ple ID: Method Prep Type: To	Blank
Analysis Batch: 499923									
· ····· <b>,</b> ··· · ······	Ν	/IB MB							
Analyte	Res	ult Qualifier	RL	MDL Uni	t	D	Prepared	Analyzed	Dil Fac
Sulfate	N	ND	5.00	1.03 mg/	L			06/24/20 10:54	1

# Client Sample ID: MW-15(S) Prep Type: Total/NA

Prep Type: Total/NA

#### Client Sample ID: MW-15(S) Prep Type: Total/NA

Eurofins TestAmerica, Denver

3 4 5

9

Job ID: 280-137631-1

4 5 6

9

# Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 280-499923/4						Clie	nt Sai	mple ID	: Lab Cor	ntrol Sa	ampie
Matrix: Water									Prep Ty	pe: To	tal/NA
Analysis Batch: 499923											
			Spike	LCS	LCS				%Rec.		
Analyte			Added	Resul	Qualifier	Unit	D	%Rec	Limits		
Sulfate			100	96.13		mg/L		96	90 - 110		
Lab Sample ID: LCSD 280-499923/	5				C	Client Sa	mple	ID: Lab	Control	Sampl	e Dup
Matrix: Water									Prep Ty	pe: To	tal/NA
Analysis Batch: 499923											
			Spike	LCSE	LCSD				%Rec.		RPD
Analyte			Added	Resul	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfate			100	96.06	i	mg/L		96	90 - 110	0	10
Lab Sample ID: MRL 280-499923/3						Clie	nt Sai	nple ID	: Lab Cor	ntrol Sa	ample
Matrix: Water									Prep Ty	pe: Tot	tal/NA
Analysis Batch: 499923											
			Spike	MRL	MRL				%Rec.		
Analyte			Added	Resul	Qualifier	Unit	D	%Rec	Limits		
Sulfate			5.00	4.894	J	mg/L		98	50 - 150		
Lab Sample ID: MB 280-498800/1 Matrix: Water							Clie	ent Sam	ple ID: M Prep Tv	ethod pe: Toi	Blank tal/NA
Lab Sample ID: MB 280-498800/1 Matrix: Water Analysis Batch: 498800	мв	МВ					Clie	ent Sam	ple ID: M Prep Ty	ethod pe: Tof	Blank tal/NA
Lab Sample ID: MB 280-498800/1 Matrix: Water Analysis Batch: 498800 Analyte	MB Result	MB Qualifier		RL	MDL Unit	I	Clie D P	ent Sam	iple ID: M Prep Ty Analy:	ethod pe: Toi zed	Blank tal/NA Dil Fac
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)	MB Result ND	MB Qualifier		<b>RL</b> 10.0	MDL Unit 4.70 mg/L	I		ent Sam	<b>Prep Ty</b> <b>Prep Ty</b> <u>Analy:</u> <u>06/15/20</u>	ethod pe: Tot zed 15:11	Blank tal/NA Dil Fac
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water	MB Result ND	MB Qualifier		<b>RL</b> 10.0	MDL Unit 4.70 mg/L	Clie	Clie	ent Sam repared mple ID	Prep Ty Analy: - Analy: 06/15/20 : Lab Cor Prep Ty	ethod pe: Tot zed 15:11 - ntrol Sa pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800	MB Result ND	MB Qualifier		<b>RL</b> 10.0	MDL Unit 4.70 mg/L	Clie	Clie	repared mple ID	Prep Ty Analy: 06/15/20 : Lab Cor Prep Ty	ethod pe: Tot 15:11 ntrol Sa pe: Tot	Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800	MB Result ND	MB Qualifier		RL 10.0 LCS	MDL Unit 4.70 mg/L	Clie	Clie	repared mple ID	Prep Ty Analy: 06/15/20 Lab Cor Prep Ty %Rec.	ethod pe: Tot <sup>zed</sup> 15:11 - htrol Sa pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte	MB Result ND	MB Qualifier	Spike Added	RL 10.0 LCS Resul	MDL Unit 4.70 mg/L	Clie	Clie	repared mple ID	Prep Ty Analy: 06/15/20 Lab Cor Prep Ty %Rec. Limits	ethod pe: Tot zed 15:11 htrol Sa pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)	MB Result ND	MB Qualifier	Spike Added 500	RL           10.0           LCS           Result           496.0	MDL Unit 4.70 mg/L	Clie Unit mg/L	Clie	repared mple ID <u>%Rec</u> 99	Analy:           06/15/20           : Lab Cor           Prep Ty           %Rec.           Limits           93 - 110	ethod pe: Tot zed 15:11 - htrol Sa pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)	MB Result ND	MB Qualifier	Spike Added 500	RL 10.0 LCS Resul 496.0	MDL Unit 4.70 mg/L	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99	Analy: - Analy: 06/15/20 : Lab Cor Prep Ty %Rec. Limits 93 - 110 • Control	ethod pe: Tot 15:11 - ntrol Sa pe: Tot Sample	Blank tal/NA Dil Fac 1 ample tal/NA e Dup
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/2         Matrix: Water         Matrix: Water	MB Result ND	MB Qualifier	Spike Added 500	RL           10.0           LCS           Result           496.0	MDL Unit 4.70 mg/L	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab	Analy: - Analy: 06/15/20 : Lab Cor Prep Ty %Rec. Limits 93 - 110 O Control Prep Ty	ethod pe: Tot zed 15:11 - ntrol Sa pe: Tot Sampli pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/2         Matrix: Water         Analysis Batch: 498800	MB Result ND	MB Qualifier	Spike Added 500	RL           10.0           LCS           Result           496.0	MDL Unit 4.70 mg/L	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 - ID: Lab	Analy: Of/15/20 Control Prep Ty %Rec. Limits 93 - 110 Control Prep Ty	ethod pe: Tot zed 15:11 htrol Sa pe: Tot Samply pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/2         Matrix: Water         Analysis Batch: 498800	MB Result ND	MB Qualifier	Spike Added 500 Spike	RL           10.0           LCS           Result           496.0           LCSE	MDL Unit 4.70 mg/L	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab	Analy: Official of the second state of the se	ethod pe: Tot zed 15:11 htrol Sa pe: Tot Sample pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800	MB Result ND	MB Qualifier	Spike Added 500 Spike Added	RL 10.0 LCS Result 496.0 LCSE Result	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa Unit	Clie	repared mple ID <u>%Rec</u> ID: Lab %Rec	Analy: Analy: 06/15/20 Lab Cor Prep Ty %Rec. Limits 93 - 110 Control Prep Ty %Rec. Limits	ethod pe: Tot zed 15:11 - ntrol Sa pe: Tot Sample pe: Tot RPD	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800	MB Result ND	MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCS           Result           496.0           LCSE           Result           493.0	MDL Unit 4.70 mg/L LCS Qualifier	Unit mg/L Client Sa	Clie	repared mple ID 	Analy:           06/15/20           Lab Cor           Prep Ty           %Rec.           Limits           93 - 110           Control           Prep Ty           %Rec.           Limits           93 - 110           Yange           %Rec.           Limits           93 - 110	ethod pe: Tot zed 15:11 - ntrol Sa pe: Tot Sample pe: Tot 	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Lab Sample ID: MB 280-498802/1	MB Result ND	MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCS           Result           496.0           LCSE           Result           493.0	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa Unit mg/L	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab <u>%Rec</u> 99	Analy: Analy: 06/15/20 Lab Cor Prep Ty %Rec. Limits 93 - 110 Control Prep Ty %Rec. Limits 93 - 110 prep Ty %Rec. Limits 93 - 110	ethod           pe: Tot           15:11           ntrol Sa           pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20 Blank
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498800         Analysis Batch: 498800         Lab Sample ID: LCSD 280-498802/1         Matrix: Water         Total Dissolved Solids (TDS)         Lab Sample ID: MB 280-498802/1         Matrix: Water	MB Result ND	MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCS           Result           496.0           LCSE           Result           493.0	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab <u>%Rec</u> 99	Analy: Analy: 06/15/20 Lab Cor Prep Ty %Rec. Limits 93 - 110 Control Prep Ty %Rec. Limits 93 - 110 prep Ty %Rec. Limits 93 - 110	zed           15:11           ntrol Sa           pe: Tot           Sample           pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20 Blank tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: MB 280-498802/1         Matrix: Water         Analysis Batch: 498802	MB Result ND	MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCSE           Result           496.0           LCSE           Result           493.0	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab <u>%Rec</u> 99	Analy: Analy: 06/15/20 Lab Cor Prep Ty %Rec. Limits 93 - 110 Control Prep Ty %Rec. Limits 93 - 110 prep Ty %Rec. Limits 93 - 110 Prep Ty	ethod pe: Tot 15:11 - ntrol Sa pe: Tot Sample pe: Tot 1 ethod pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20 Blank tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: MB 280-498802/1         Matrix: Water         Analysis Batch: 498802	MB Result ND	MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCS           Result           496.0           LCSE           Result           493.0	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab <u>%Rec</u> 99	Analy: Of/15/20 Analy: Of/15/20 Lab Cor Prep Ty %Rec. Limits 93 - 110 Control Prep Ty %Rec. Limits 93 - 110 Prep Ty %Rec. Limits 93 - 110 Prep Ty	ethod pe: Tot 15:11 - ntrol Sa pe: Tot Sample pe: Tot 1 ethod pe: Tot	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20 Blank tal/NA
Lab Sample ID: MB 280-498800/1         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analysis Batch: 498800         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCS 280-498800/2         Matrix: Water         Analyte         Total Dissolved Solids (TDS)         Lab Sample ID: LCSD 280-498800/3         Matrix: Water         Analysis Batch: 498800         Analysis Batch: 498802         Analysis Batch: 498802         Analysis Batch: 498802	MB Result ND	MB Qualifier MB Qualifier	Spike Added 500 Spike Added 500	RL           10.0           LCS           Result           496.0           LCSE           Result           493.0           RL	MDL Unit 4.70 mg/L LCS Qualifier	Clie Unit mg/L Client Sa	Clie	repared mple ID <u>%Rec</u> 99 ID: Lab <u>%Rec</u> 99 - ent Sam	Analy: Officient of the second state of the s	ethod pe: Tot zed 15:11 htrol Sa pe: Tot Sample pe: Tot 1 ethod pe: Tot zed	Blank tal/NA Dil Fac 1 ample tal/NA e Dup tal/NA RPD Limit 20 Blank tal/NA Dil Fac

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

Lab Sample ID: LCS 280-498802/2 Client Sample ID: L Matrix: Water F Analysis Batch: 498802						: Lab Control Sample Prep Type: Total/NA	
	Spike	LCS	LCS				%Rec.
Analyte	Added 500	<b>Result</b> 509.0	Qualifier	Unit mg/L	<u>D</u>	%Rec 102	Limits

# Metals

#### Prep Batch: 498858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-1	MW-18(S)	Total/NA	Water	3010A	
280-137631-2	DUP-3	Total/NA	Water	3010A	
280-137631-3	MW-19(S)	Total/NA	Water	3010A	
280-137631-4	MW-17(S)	Total/NA	Water	3010A	
280-137631-5	MW-16(S)	Total/NA	Water	3010A	
280-137631-6	MW-20(S)	Total/NA	Water	3010A	
280-137631-7	MW-15(S)	Total/NA	Water	3010A	
MB 280-498858/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-498858/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-137631-1 MS	MW-18(S)	Total/NA	Water	3010A	
280-137631-1 MSD	MW-18(S)	Total/NA	Water	3010A	

#### Analysis Batch: 499563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-1	MW-18(S)	Total/NA	Water	6010C	498858
280-137631-2	DUP-3	Total/NA	Water	6010C	498858
280-137631-3	MW-19(S)	Total/NA	Water	6010C	498858
280-137631-4	MW-17(S)	Total/NA	Water	6010C	498858
280-137631-5	MW-16(S)	Total/NA	Water	6010C	498858
280-137631-6	MW-20(S)	Total/NA	Water	6010C	498858
280-137631-7	MW-15(S)	Total/NA	Water	6010C	498858
MB 280-498858/1-A	Method Blank	Total/NA	Water	6010C	498858
LCS 280-498858/2-A	Lab Control Sample	Total/NA	Water	6010C	498858
280-137631-1 MS	MW-18(S)	Total/NA	Water	6010C	498858
280-137631-1 MSD	MW-18(S)	Total/NA	Water	6010C	498858

# **General Chemistry**

#### Analysis Batch: 498800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-2	DUP-3	Total/NA	Water	SM 2540C	
MB 280-498800/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-498800/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-498800/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

#### Analysis Batch: 498802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-1	MW-18(S)	Total/NA	Water	SM 2540C	
280-137631-3	MW-19(S)	Total/NA	Water	SM 2540C	
280-137631-4	MW-17(S)	Total/NA	Water	SM 2540C	
280-137631-5	MW-16(S)	Total/NA	Water	SM 2540C	
280-137631-6	MW-20(S)	Total/NA	Water	SM 2540C	
280-137631-7	MW-15(S)	Total/NA	Water	SM 2540C	
MB 280-498802/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-498802/2	Lab Control Sample	Total/NA	Water	SM 2540C	

# Analysis Batch: 499766

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-137631-1	MW-18(S)	Total/NA	Water	9056A	
280-137631-2	DUP-3	Total/NA	Water	9056A	
280-137631-3	MW-19(S)	Total/NA	Water	9056A	

# **QC** Association Summary

# **General Chemistry (Continued)**

# Analysis Batch: 499766 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-4	MW-17(S)	Total/NA	Water	9056A	
280-137631-5	MW-16(S)	Total/NA	Water	9056A	
280-137631-6	MW-20(S)	Total/NA	Water	9056A	
280-137631-7	MW-15(S)	Total/NA	Water	9056A	
MB 280-499766/6	Method Blank	Total/NA	Water	9056A	
LCS 280-499766/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-499766/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-499766/3	Lab Control Sample	Total/NA	Water	9056A	
280-137631-7 MS	MW-15(S)	Total/NA	Water	9056A	
280-137631-7 MSD	MW-15(S)	Total/NA	Water	9056A	
280-137631-7 DU	MW-15(S)	Total/NA	Water	9056A	

#### Analysis Batch: 499923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137631-1	MW-18(S)	Total/NA	Water	9056A	
280-137631-2	DUP-3	Total/NA	Water	9056A	
280-137631-3	MW-19(S)	Total/NA	Water	9056A	
280-137631-4	MW-17(S)	Total/NA	Water	9056A	
280-137631-7	MW-15(S)	Total/NA	Water	9056A	
MB 280-499923/6	Method Blank	Total/NA	Water	9056A	
LCS 280-499923/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-499923/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-499923/3	Lab Control Sample	Total/NA	Water	9056A	

Job ID: 280-137631-1

10

Initial

Amount

50 mL

5 mL

5 mL

100 mL

Final

Amount

50 mL

5 mL

5 mL

100 mL

Batch

Number

498858

499563

499766

499923

498802

Dil

1

1

5

1

Factor

Run

Batch

Туре

Prep

Analysis

Batch

3010A

6010C

Method

Client Sample ID: MW-18(S)

Date Collected: 06/11/20 10:20

Date Received: 06/12/20 14:12

Prep Type

Total/NA

Total/NA

Lab

TAL DEN

TAL DEN

TAL DEN

TAL DEN

TAL DEN

Matrix: Water

Matrix: Water

#### Lab Sample ID: 280-137631-1 Matrix: Water

Analyst

NK

Lab Sample ID: 280-137631-2

Lab Sample ID: 280-137631-3

Prepared

or Analyzed

06/17/20 09:00

06/20/20 06:53 MRJ

06/23/20 15:48 JAP

06/24/20 16:39 JAP

06/15/20 15:15 ILC

# Total/NA Analysis 9056A Total/NA Analysis 9056A Total/NA Analysis SM 2540C Client Sample ID: DUP-3

#### Date Collected: 06/11/20 00:00 Date Received: 06/12/20 14:12

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:10	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 16:04	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	499923	06/24/20 16:56	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498800	06/15/20 15:11	ILC	TAL DEN

#### Client Sample ID: MW-19(S) Date Collected: 06/11/20 11:30 Date Received: 06/12/20 14:12

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:13	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 16:20	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	499923	06/24/20 17:12	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498802	06/15/20 15:15	ILC	TAL DEN

#### Client Sample ID: MW-17(S) Date Collected: 06/11/20 11:55 Date Received: 06/12/20 14:12

#### Lab Sample ID: 280-137631-4 Matrix: Water

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:17	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 16:37	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	499923	06/24/20 19:07	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498802	06/15/20 15:15	ILC	TAL DEN

#### Lab Sample ID: 280-137631-5 Matrix: Water

Lab Sample ID: 280-137631-7

Matrix: Water

# Client Sample ID: MW-16(S) Date Collected: 06/11/20 12:10 Date Received: 06/12/20 14:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:34	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 16:53	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498802	06/15/20 15:15	ILC	TAL DEN

#### Client Sample ID: MW-20(S) Date Collected: 06/11/20 12:45 Date Received: 06/12/20 14:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:37	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 17:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498802	06/15/20 15:15	ILC	TAL DEN

#### Client Sample ID: MW-15(S) Date Collected: 06/11/20 13:00 Date Received: 06/12/20 14:12

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 07:40	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 17:26	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	499923	06/24/20 19:23	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	498802	06/15/20 15:15	ILC	TAL DEN

#### Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

1

Job ID: 280-137631-1

# Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
North Dakota	State	R-034	01-08-21

Clinic Information         「「「」」」」」」         「「」」」」」         「「」」」」         「」」」」         「」」」」         「」」」」         「」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」」         「」」」」         「」」」」         「」」」」         「」」」」」         「」」」」         「」」」」」         「」」」」」         「」」」」         「」」」」         「」」」」」         「」」」         「」」」」         「」」」」         「」」」」         「」」」」         「」」」」         「」」」」         「」」」」         「」」」」」         「」」」」         「」」」」」 <th>Ecretins TestAmerica, Denver 1955 Yarrow Street Arvada, CO 80002 Phone: 303-736-0100 Fax: 303-431-7171</th> <th>0</th> <th>hain o</th> <th>f Cust</th> <th>ody Re</th> <th>scord</th> <th>#280</th> <th>🔆 eurofins 🛓</th> <th>nvironment Testing</th>	Ecretins TestAmerica, Denver 1955 Yarrow Street Arvada, CO 80002 Phone: 303-736-0100 Fax: 303-431-7171	0	hain o	f Cust	ody Re	scord	#280	🔆 eurofins 🛓	nvironment Testing
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	Client Contact Mr. Jason Lach	Phone: 12-5	30-34	18	E-Mail: darler	ie.bandy@testamericain	c.com	Page: Page 1 of 1	
$ \begin{array}{                                    $	Company: AECOM Technical Services Inc.					A	nalysis Requested	Job #:	
Control	Address: 525 Vine Street Suite 1800	Due Date Requeste	44					Preservation Codes:	
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Montachener	Email: jason.lach@aecom.com	WO# 60570072				or No) de, and	10110010	Custody	J - Acetone / - MCAA
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Possible Hazard Identification     Possible Hazard Identification     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       PNon-Hazard Centification     Flammable     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       PNon-Hazard Centification     Flammable     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       Possible Hazard Identification     Poison B     Unknown     Radiological     Return To Client     Disposal By Lab       Pentry Kit Reinquished by:     Empty Kit Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinquished by:     Return To Client     Disposal By Lab     Archive For     Month       Reinductiter     Tot     Recurved By: <td< td=""><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td></td<>				_					
Possible Hazard Identification       Possible Hazard Identification       Possible Hazard Identification       Non-Hazard Elements       Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)         Possible Hazard Identification       Non-Hazard Elements       Skin Irritant       Poison B       Unknown       Return To Client       Disposal By Lab       Archive For       Month         Deliverable Requested: I. II. III. V, Other (specify)       Empty Kit Relinquished by:       Special Instructions/OC Requirements:       Method of Shipment       Month         Retinuuted by:       Deliverable Requested: I. II. III. V, Other (specify)       Date:       Time:       Month         Retinuuted by:       Disposal By Lab       Archive For       Month         Retinuuted by:       Date:       Time:       Time:       Company       Received by:       Date/Time:       Company         Relinquished by:       Date/Time:       Date/Time:       Company       Received by:       Date/Time:       Company         Relinquished by:       Custody Seal Intact:       Custody Seal No.: 17.5, 5(13.1, 7.0)       Date/Time:       Company									
Possible Hazard Identification     Possible Hazard Identification       Non-Hazard     Flammable     Skin Irritant     Poison B     Unknown     Radiological     Sample Disposal By Lab     Archive For     Month:       Non-Hazard     Flammable     Skin Irritant     Poison B     Unknown     Radiological     Return To Client     Disposal By Lab     Archive For     Month:       Deliverable Requested: I. II. IV, Other (specify)     Date:     Date:     Irrine:     Method of Shipment:       Reinquished by:     Tub     Company     Received by:     Method of Shipment:     Company       Reinquished by:     Tub     Company     Received by:     Method of Shipment:     Company       Reinquished by:     Tub     Company     Received by:     Method of Shipment:     Company       Reinquished by:     Tub     Company     Received by:     Method of Shipment:     Company       Reinquished by:     Tub     Company     Received by:     Method of Shipment:     Company       Reinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Reinquished by:     Custody Seals Intact:     Custody Seal No: 157, 5713     Custody     Date/Time:     Company		_							
Deliverable Requested: I. II. IV, Other (specify)     Deliverable Requested: I. II. IV, Other (specify)       Empty Kit Relinquished by:     Deliverable Requested: I. II. IV, Other (specify)       Empty Kit Relinquished by:     Deliverable Requested: I. II. IV, Other (specify)       Relinquished by:     Deliverable Requested: I. II. IV, Other (specify)       Relinquished by:     Deliverable Received by:       Custody Seals Intact:     Custody Seal No: 17, 17, 17, 17, 17, 17, 17, 17, 17, 17,	Possible Hazard Identification	Doison B D	unoun	Radiologic	sal	Sample Disposal	( A fee may be assessed if s lient Disposal By L	amples are retained longer than 1 i	month) Months
Empty Kit Relinquished by:     Date:     Time:     Method of Shipment       Relinquished by:     American and a shipment     Method of Shipment       Relinquished by:     American and a shipment     Date/Time:     Company       Relinquished by:     American and a shipment     Date/Time:     Company       Relinquished by:     American and by:     Date/Time:     Company       Relinquished by:     Date/Time:     Company     Received by:       Custody Seals Intact:     Custody Seal No.: 157, 5713     Company	Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions	s/QC Requirements:		
Relinquished by:     T. M.     Date/Time:     Date/Time:     Company       Relinquished by:     T. M.     Date/Time:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company       Relinquished by:     Date/Time:     Date/Time:     Company     Received by:     Date/Time:     Company	Empty Kit Relinquished by:		Date:			Time:	Method o	of Shipment:	
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	Custody Seals Intact: Custody Seal No.: 150	5431				Cooler Temperatu	Ire(s) °C and Other Remarks GS	6/12/20	

Page 22 of 23

6/26/2020

Q

Client: AECOM Technical Services Inc.

#### Login Number: 137631 List Number: 1 Creator: Lubin, Julius C

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	

Job Number: 280-137631-1

List Source: Eurofins TestAmerica, Denver

Environment Testing America

# **ANALYTICAL REPORT**

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

# Laboratory Job ID: 280-142153-1

Client Project/Site: CCR Groundwater - North Dakota Sites

For:

..... Links

Review your project results through

**Total** Access

Have a Question?

Ask-

The

www.eurofinsus.com/Env

Visit us at:

Expert

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

Attn: Aaron Knutson

Shelly Twiner

Authorized for release by: 12/1/2020 1:43:28 PM Shelby Turner, Project Manager I (303)736-0100

Shelby.Turner@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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QC Association	16
Chronicle	18
Certification Summary	20
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# **Definitions/Glossary**

#### Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

Job ID: 280-142153-1

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	5
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)	8
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	9
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: 280-142153-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

# **CASE NARRATIVE**

# **Client: Basin Electric Power Cooperative**

# Project: CCR Groundwater - North Dakota Sites

# Report Number: 280-142153-1

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.

#### <u>RECEIPT</u>

The samples were received on 10/30/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

#### **Receipt Exceptions**

Per client instruction, the following samples were logged for 6010C Boron & Calcium, 9056A Chloride, Fluoride, Sulfate, and 2540C TDS analysis only: MW17 (5) (280-142153-1), MW15 (6) (280-142153-2), MW20 (5) (280-142153-3), MW16 (5) (280-142153-4), MW19 (6) (280-142153-5), DUPLICATE (280-142153-6) and MW18 (5) (280-142153-7).

#### TOTAL RECOVERABLE METALS

Samples MW17 (5) (280-142153-1), MW15 (6) (280-142153-2), MW20 (5) (280-142153-3), MW16 (5) (280-142153-4), MW19 (6) (280-142153-5), DUPLICATE (280-142153-6) and MW18 (5) (280-142153-7) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/12/2020 and analyzed on 11/12/2020 and 11/16/2020.

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

#### TOTAL DISSOLVED SOLIDS

Samples MW17 (5) (280-142153-1), MW15 (6) (280-142153-2), MW20 (5) (280-142153-3), MW16 (5) (280-142153-4), MW19 (6) (280-142153-5), DUPLICATE (280-142153-6) and MW18 (5) (280-142153-7) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/03/2020 and 11/04/2020.

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

#### ANIONS (28 DAYS)

Samples MW17 (5) (280-142153-1), MW15 (6) (280-142153-2), MW20 (5) (280-142153-3), MW16 (5) (280-142153-4), MW19 (6) (280-142153-5), DUPLICATE (280-142153-6) and MW18 (5) (280-142153-7) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 11/22/2020, 11/23/2020 and 11/25/2020.

Samples MW17 (5) (280-142153-1)[5X], MW15 (6) (280-142153-2)[5X], MW19 (6) (280-142153-5)[5X], DUPLICATE (280-142153-6)[5X] and MW18 (5) (280-142153-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

#### Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

# Job ID: 280-142153-1 (Continued)

## Laboratory: Eurofins TestAmerica, Denver (Continued)

Sample MW18 (5) (280-142153-7) is reporting lab QC for Chloride and Sulfate from batch 518080. The sample is reporting lab QC for Fluoride from batch 517731.

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

# **Detection Summary**

RL

100

200

3.00

0.500

25.0

20.0

RL

100

200

3.00

0.500

25.0

25.0

MDL Unit

ug/L

ug/L

mg/L

mg/L

mg/L

mg/L

Unit

ug/L

ug/L

mg/L

mg/L

mg/L

mg/L

MDL

**Result Qualifier** 

160

5600

9.82

1.29

224

1770

147

6310

8.37

1.18

357

1900

**Result Qualifier** 

#### Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

# Client Sample ID: MW17 (5)

Analyte

Calcium

Chloride

Fluoride

Sulfate

Analyte

Calcium

Chloride

Fluoride

Sulfate

Boron

Total Dissolved Solids (TDS)

Client Sample ID: MW15 (6)

Boron

Prep Type

Total Recoverable

Total Recoverable

Total/NA

Total/NA

Total/NA

Total/NA

Prep Type

Total Recoverable

Total Recoverable

Total/NA

Total/NA

Total/NA

Total/NA

Lab Sample ID: 280-142153-1

Dil Fac D Method

1

1

1

1

5

1

Dil Fac D

1

1

1

1

5

1

6010C

6010C

9056A

9056A

9056A

Method

6010C

6010C

9056A

9056A

9056A

SM 2540C

Lab Sample ID: 280-142153-3

Lab Sample ID: 280-142153-4

Lab Sample ID: 280-142153-5

SM 2540C

Lab Sample ID: 280-142153-2

5
8
9

# Client Sample ID: MW20 (5)

Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Boron	151		100		ug/L	1	_	6010C	Total
									Recoverable
Calcium	6830		200		ug/L	1		6010C	Total
									Recoverable
Chloride	19.5		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.05		0.500		mg/L	1		9056A	Total/NA
Sulfate	69.5		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1940		25.0		mg/L	1		SM 2540C	Total/NA

# Client Sample ID: MW16 (5)

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	168		100		ug/L	1	_	6010C	Total
									Recoverable
Calcium	3480		200		ug/L	1		6010C	Total
									Recoverable
Chloride	15.8		3.00		mg/L	1		9056A	Total/NA
Fluoride	2.26		0.500		mg/L	1		9056A	Total/NA
Sulfate	84.9		5.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	1330		25.0		mg/L	1		SM 2540C	Total/NA

# Client Sample ID: MW19 (6)

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Ргер Туре
Boron	155	100	ug/L	1	6010C	Total
						Recoverable
Calcium	4480	200	ug/L	1	6010C	Total
						Recoverable
Chloride	11.3	3.00	mg/L	1	9056A	Total/NA
Fluoride	0.588	0.500	mg/L	1	9056A	Total/NA
Sulfate	707	25.0	mg/L	5	9056A	Total/NA

This Detection Summary does not include radiochemical test results.

# **Detection Summary**

#### Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

#### Job ID: 280-142153-1

Total/NA

Total/NA

# Client Sample ID: MW19 (6) (Continued)

690

2150

La	ab Sample	ID:	280-1421	53-5

5

1

#### **Result Qualifier** MDL Unit Dil Fac D Method Analyte RL Prep Type Total Dissolved Solids (TDS) 2190 25.0 SM 2540C Total/NA mg/L 1 Client Sample ID: DUPLICATE Lab Sample ID: 280-142153-6 Result Qualifier MDL Unit Analyte RL Dil Fac D Method Prep Type Boron 153 100 6010C ug/L 1 Total Recoverable Calcium 4430 200 ug/L 1 6010C Total Recoverable Chloride 3.00 9056A 11.7 mg/L 1 Total/NA Fluoride 0.592 0.500 mg/L 1 9056A Total/NA

25.0

25.0

mg/L

mg/L

# Client Sample ID: MW18 (5)

Total Dissolved Solids (TDS)

Sulfate

# Lab Sample ID: 280-142153-7

9056A

SM 2540C

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type	
Boron	120		100		ug/L	1	_	6010C	Total	
									Recoverable	
Calcium	5930		200		ug/L	1		6010C	Total	
									Recoverable	
Chloride	4.65		3.00		mg/L	1		9056A	Total/NA	
Fluoride	1.28		0.500		mg/L	1		9056A	Total/NA	- 1
Sulfate	356		25.0		mg/L	5		9056A	Total/NA	
Total Dissolved Solids (TDS)	1670		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 - North Dakota Sites

1
5
6
7
8
9
10

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 TestAmerica, 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

Job ID: 280-142153-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142153-1	MW17 (5)	Water	10/28/20 08:50	10/30/20 09:40	
280-142153-2	MW15 (6)	Water	10/28/20 11:10	10/30/20 09:40	
280-142153-3	MW20 (5)	Water	10/28/20 10:30	10/30/20 09:40	
280-142153-4	MW16 (5)	Water	10/28/20 09:55	10/30/20 09:40	
280-142153-5	MW19 (6)	Water	10/28/20 13:20	10/30/20 09:40	
280-142153-6	DUPLICATE	Water	10/28/20 00:00	10/30/20 09:40	
280-142153-7	MW18 (5)	Water	10/28/20 14:45	10/30/20 09:40	

# **Client Sample Results**

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites Job ID: 280-142153-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW17 (5)							Lab Sam	ole ID: 280-14	2153-1
Date Collected: 10/28/20 08:50								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	160		100		ug/L		11/12/20 08:19	11/12/20 20:50	1
Calcium	5600		200		ug/L		11/12/20 08:19	11/16/20 16:43	1
Client Sample ID: MW15 (6)							Lab Sam	ole ID: 280-14	2153-2
Date Collected: 10/28/20 11:10								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	147		100		ug/L		11/12/20 08:19	11/12/20 20:53	1
Calcium	6310		200		ug/L		11/12/20 08:19	11/16/20 16:47	1
Client Sample ID: MW20 (5)							Lab Sam	ole ID: 280-14	2153-3
Date Collected: 10/28/20 10:30								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	151		100		ug/L		11/12/20 08:19	11/12/20 20:57	1
Calcium	6830		200		ug/L		11/12/20 08:19	11/16/20 16:52	1
Client Sample ID: MW16 (5)							Lab Sam	ole ID: 280-14	2153-4
Date Collected: 10/28/20 09:55								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	168		100		ug/L		11/12/20 08:19	11/12/20 21:00	1
Calcium	3480		200		ug/L		11/12/20 08:19	11/16/20 16:55	1
Client Sample ID: MW19 (6)							Lab Sam	ole ID: 280-14	2153-5
Date Collected: 10/28/20 13:20								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	155		100		ug/L		11/12/20 08:19	11/12/20 21:03	1
Calcium	4480		200		ug/L		11/12/20 08:19	11/16/20 16:59	1
Client Sample ID: DUPLICATE							Lab Sam	ble ID: 280-14	2153-6
Date Collected: 10/28/20 00:00								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	153		100		ug/L		11/12/20 08:19	11/12/20 21:07	1
Calcium	4430		200		ug/L		11/12/20 08:19	11/16/20 17:02	1
Client Sample ID: MW18 (5)							Lab Sam	Die ID: 280-14	2153-7
Date Collected: 10/28/20 14:45								Matrix:	Water
Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	120		100		ua/L		11/12/20 08:19	11/12/20 21:10	1
					5				

# **Client Sample Results**

RL

3.00

0.500

25.0

20.0

RL

3.00

0.500

25.0

25.0

**Result Qualifier** 

**Result Qualifier** 

9.82

1.29

224

1770

8.37

1.18

357

1900

MDL Unit

MDL Unit

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

D

D

Prepared

Prepared

**Client: Basin Electric Power Cooperative** Project/Site: CCR Groundwater - North Dakota Sites

**General Chemistry** 

Analyte

Chloride

Fluoride

Sulfate

Analyte

Chloride

Fluoride

Sulfate

Client Sample ID: MW17 (5)

**Total Dissolved Solids (TDS)** 

**Total Dissolved Solids (TDS)** 

Client Sample ID: MW20 (5)

Date Collected: 10/28/20 10:30

Date Received: 10/30/20 09:40

Client Sample ID: MW15 (6)

Date Collected: 10/28/20 11:10

Date Received: 10/30/20 09:40

Date Collected: 10/28/20 08:50

Date Received: 10/30/20 09:40

Job ID: 280-142153-1

Matrix: Water

Dil Fac

1

1

Lab Sample ID: 280-142153-1

Analyzed

11/22/20 19:36

11/22/20 19:36

11/22/20 19:52

11/03/20 19:47

Analyzed

11/22/20 20:09

11/22/20 20:09

11/22/20 20:25

11/03/20 19:47

5 1 Lab Sample ID: 280-142153-2 8 Matrix: Water Dil Fac 1 1 5 1

Lab Sample ID: 280-142153-3 Matrix: Water

Lab Sample ID: 280-142153-4

Lab Sample ID: 280-142153-5

Lab Sample ID: 280-142153-6

Matrix: Water

**Matrix: Water** 

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.5		3.00		mg/L			11/22/20 20:42	1
Fluoride	1.05		0.500		mg/L			11/22/20 20:42	1
Sulfate	69.5		5.00		mg/L			11/22/20 20:42	1
Total Dissolved Solids (TDS)	1940		25.0		mg/L			11/03/20 19:47	1

#### Client Sample ID: MW16 (5) Date Collected: 10/28/20 09:55 Date Received: 10/30/20 09:40

	•						
Analyte	Result Q	ualifier RL	MDL Un	nit D	Prepared	Analyzed	Dil Fac
Chloride	15.8	3.00	mg	g/L		11/22/20 22:53	1
Fluoride	2.26	0.500	mg	g/L		11/22/20 22:53	1
Sulfate	84.9	5.00	mg	g/L		11/22/20 22:53	1
Total Dissolved Solids (TDS)	1330	25.0	mo	a/L		11/03/20 19:47	1

#### Client Sample ID: MW19 (6) Date Collected: 10/28/20 13:20 Data Dessived: 40/20/20 00:40

Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.3		3.00		mg/L			11/22/20 23:26	1
Fluoride	0.588		0.500		mg/L			11/22/20 23:26	1
Sulfate	707		25.0		mg/L			11/22/20 23:42	5
Total Dissolved Solids (TDS)	2190		25.0		ma/L			11/03/20 19:47	1

# **Client Sample ID: DUPLICATE** Date Collected: 10/28/20 00:00

Date Received: 10/30/20 09:40									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.7		3.00		mg/L			11/22/20 23:58	1
Fluoride	0.592		0.500		mg/L			11/22/20 23:58	1
Sulfate	690		25.0		mg/L			11/23/20 00:15	5
Total Dissolved Solids (TDS)	2150		25.0		mg/L			11/03/20 19:47	1

# **Client Sample Results**

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

# **General Chemistry**

Client Sample ID: MW18 (5) Date Collected: 10/28/20 14:45 Date Received: 10/30/20 09:40							Lab Sam	ple ID: 280-14 Matrix:	2153-7 Water
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.65		3.00		mg/L			11/25/20 12:57	1
Fluoride	1.28		0.500		mg/L			11/23/20 02:10	1
Sulfate	356		25.0		mg/L			11/25/20 13:13	5
Total Dissolved Solids (TDS)	1670		20.0		mg/L			11/04/20 16:11	1

Job ID: 280-142153-1

# **QC Sample Results**

Job ID: 280-142153-1

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

# Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-516251/1- Matrix: Water	<b>-A</b>							Clie F	ent Sam Prep Typ	ple ID: Me be: Total R	thod ecove	Blank erable
Analysis Batch: 516571										Prep Bat	tch: 5	16251
	MB	MB										
Analyte	Result	Qualifier		RL	I	MDL Unit	D	P	repared	Analyze	əd	Dil Fac
Boron	ND			100		ug/L		11/1	2/20 08:19	9 11/12/20 2	0:06	1
Lab Sample ID: MB 280-516251/1-	-A							Clie	ent Sam	ple ID: Me	thod	Blank
Matrix: Water								F	Prep Typ	e: Total R	ecov	erable
Analysis Batch: 516981										Prep Bat	tch: 5	16251
	MB	MB										
Analyte	Result	Qualifier		RL	I	MDL Unit	D	) P	repared	Analyze	əd	Dil Fac
Calcium	ND			200		ug/L		11/1	2/20 08:19	11/16/20 1	6:00	1
Lab Sample ID: LCS 280-516251/2	2-A						Clier	nt Sai	nple ID:	Lab Cont	trol Sa	ample
Matrix: Water								F	Prep Typ	e: Total R	ecov	erable
Analysis Batch: 516571										Prep Bat	tch: 5	16251
			Spike		LCS	LCS				%Rec.		
Analyte			Added	I	Result	Qualifier	Unit	D	%Rec	Limits		
Boron			1000		978.7		ug/L		98	86 - 110		
Lab Sample ID: LCS 280-516251/2 Matrix: Water	2-A						Clier	nt Sar F	nple ID: Prep Typ	Lab Cont be: Total R	trol Sa ecove	ample erable
Analysis Batch: 516981										Prep Bat	tch: 5	16251
-			Spike		LCS	LCS				%Rec.		
Analyte			Added	I	Result	Qualifier	Unit	D	%Rec	Limits		
Calcium			50000		50320		ug/L		101	90 - 111		
	01											
Method: 9056A - Anions, Ion	Chron	natogra	phy									
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6	Chron	natogra	phy					Clie	ent Sam	ple ID: Me	thod	Blank
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water	Chrom	atogra	phy					Clie	ent Sam	ple ID: Me Prep Typ	thod e: Tot	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731	Chrom	natogra	phy					Clie	ent Sam	ple ID: Me Prep Typ	thod e: To	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731	Chrom MB	natogra <sup>MB</sup>	phy					Clie	ent Sam	ple ID: Me Prep Typ	thod e: To	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte	Chrom MB Result	MB Qualifier	phy	RL		MDL Unit	D	Clie	ent Sam repared	ple ID: Me Prep Typ Analyzo	thod e: Tot	Blank tal/NA Dil Fac
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride	MB Result ND	MB Qualifier	phy	<b>RL</b> 3.00	I	MDL Unit	D		ent Sam repared	ple ID: Me Prep Typ - <u>Analyz</u> o 11/22/20 1	ethod e: To e: To 5:54	Blank tal/NA Dil Fac
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride	MB Result ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500		MDL Unit mg/L mg/L	D	Clie	ent Sam repared	ple ID: Me Prep Typ - <u>Analyze</u> 11/22/20 1 11/22/20 1	ed 5:54	Blank tal/NA Dil Fac
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate	MB Result ND ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500 5.00		MDL Unit mg/L mg/L mg/L	<u>D</u>	Clie	ent Sam repared	ple ID: Me Prep Typ - <u>Analyze</u> 11/22/20 1 11/22/20 1 11/22/20 1	thod be: Tot 5:54 5:54 5:54	Blank tal/NA Dil Fac 1 1
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate	MB Result ND ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500 5.00		MDL Unit mg/L mg/L	D	Clie P	ent Sam repared	ple ID: Me Prep Typ - Analyza 11/22/20 1 11/22/20 1 11/22/20 1	ed 5:54 5:54 5:54	Blank tal/NA Dil Fac 1 1 1
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4	MB Result ND ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500 5.00		MDL Unit mg/L mg/L	D	Clie P P	ent Sam repared mple ID:	ple ID: Me Prep Typ Analyza 11/22/20 1 11/22/20 1 11/22/20 1	thod e: Tot 5:54 5:54 5:54 5:54	Blank tal/NA Dil Fac 1 1 1 2
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water	MB Result ND ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500 5.00	1	MDL Unit mg/L mg/L	D	Clie P P	ent Sam repared mple ID:	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1	thod e: To ed 5:54 5:54 5:54 5:54 trol Sa	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731	MB Result ND ND ND	MB Qualifier	phy	<b>RL</b> 3.00 0.500 5.00		MDL Unit mg/L mg/L mg/L	Clier	Clie P P	ent Sam repared mple ID:	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1	thod e: Tot 5:54 5:54 5:54 5:54 trol Sa	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731	MB Result ND ND ND	MB Qualifier	phy 	<b>RL</b> 3.00 0.500 5.00	LCS	MDL Unit mg/L mg/L mg/L	Clier	Clie P P	ent Sam repared mple ID:	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ	ethod be: Tot 5:54 5:54 5:54 5:54 trol Sa be: Tot	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte	MB Result ND ND	MB Qualifier	phy Spike Added	<b>RL</b> 3.00 0.500 5.00	LCS Result	MDL Unit mg/L mg/L mg/L LCS Qualifier	Clier	Clie P P nt Sar	ent Sam repared mple ID: %Rec	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits	ad 5:54 5:54 5:54 5:54 5:54 crol Sa e: Tot	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride	MB Result ND ND	MB Qualifier	Spike Added 100	<b>RL</b> 3.00 0.500 5.00	LCS Result 95.22	MDL Unit mg/L mg/L LCS Qualifier	Clier Unit ma/L	Clie P P nt Sar	ent Sam repared mple ID: <u>%Rec</u> 95	ple ID: Me Prep Typ Analyzo 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits 90 - 110	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Eluoride Eluoride	MB Result ND ND	MB Qualifier	Spike Added 100 5 00	<b>RL</b> 3.00 0.500 5.00	LCS Result 95.22 5 244	MDL Unit mg/L mg/L LCS Qualifier	Clier Unit mg/L mg/l	Clie P P nt Sar	ent Sam repared mple ID: <u>%Rec</u> 95	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1 <b>Lab Cont</b> <b>Prep Typ</b> %Rec. Limits 90 - 110 90 - 110	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Sulfate	MB Result ND ND	MB Qualifier	<b>Spike</b> Added 100 5.00	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L LCS Qualifier	Clier Unit mg/L mg/L	Clie P P nt Sar	ent Sam repared mple ID: <u>%Rec</u> 95 105 94	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 <b>Lab Cont</b> Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate	MB Result ND ND	MB Qualifier	<b>Spike</b> Added 100 5.00 100	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L Mg/L	Clier Unit mg/L mg/L	Clie P P nt Sar	ent Sam repared mple ID: <u>%Rec</u> 95 105 94	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110	ad 5:54 5:54 5:54 5:54 5:54	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731	MB Result ND ND	MB Qualifier	<b>Spike</b> Added 100 5.00 100	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L Mg/L	Clier Unit mg/L mg/L mg/L Client Sau	Clie P P nt Sar D	ent Sam repared mple ID: $\frac{\ensuremath{\mbox{{}^{\mbox{Rec}}}}{95}}{95}$ 105 94 ID: Lab	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 <b>Lab Cont</b> Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110 Scontrol S	thod e: Tot 5:54 5:54 5:54 5:54 trol Sa e: Tot	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water	MB Result ND ND	MB Qualifier	<b>Spike</b> Added 100 5.00 100	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L LCS Qualifier	Clier Unit mg/L mg/L mg/L Client Sa	Clie pP nt Sar D	ent Sam repared mple ID: %Rec 95 105 94 ID: Lab	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110 Secontrol Second	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water Analysis Batch: 517731	MB Result ND ND	MB Qualifier	<b>Spike</b> Added 100 5.00 100	RL 3.00 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L Mg/L UCS Qualifier	Clier Unit mg/L mg/L mg/L Client Sat	Clie P P nt Sar D mple	ent Sam repared mple ID: <u>%Rec</u> 95 105 94 ID: Lab	ple ID: Me Prep Typ Analyza 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110 90 - 110 Sprep Typ	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water Analysis Batch: 517731	MB Result ND ND ND	MB Qualifier	Spike	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L Mg/L LCS Qualifier	Clier Unit mg/L mg/L mg/L Client Sat	Clie P P nt Sar D mple	ent Sam repared mple ID: <u>%Rec</u> 95 105 94 ID: Lab	Pie ID: Me           Prep Typ           Analyze           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           Lab Control           Prep Typ           %Rec.           Limits           90 - 110           90 - 110           Prep Typ           %Rec	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA Dil Fac 1 1 1 ample tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water Analysis Batch: 517731 Matrix: Water Analysis Batch: 517731	Chrom MB Result ND ND ND	MB Qualifier	Spike Added 100 5.00 100 Spike	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87	MDL Unit mg/L mg/L mg/L LCS Qualifier	Clier Unit mg/L mg/L Client Sat	Clie P P nt Sar D mple	ent Sam repared mple ID: %Rec 95 105 94 ID: Lab	ple ID: Me Prep Typ Analyze 11/22/20 1 11/22/20 1 11/22/20 1 Lab Cont Prep Typ %Rec. Limits 90 - 110 90 - 110 90 - 110 90 - 110 90 - 110 90 - 110 Sec. Prep Typ	ad 5:54 5:54 5:54 5:54 crol Sa e: Tot	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water Analysis Batch: 517731 Matrix: Water Analysis Batch: 517731 Matrix: Water Analysis Batch: 517731 Analyte Chloride	MB Result ND ND ND	MB Qualifier	Spike Added 100 5.00 100 Spike Added	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87 LCSD Result	MDL Unit mg/L mg/L mg/L CS Qualifier	Clier Unit mg/L mg/L Client Sat	Clie P nt Sar D mple	ent Sam repared mple ID: %Rec 94 ID: Lab	Pie ID: Me           Prep Typ           Analyze           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           Lab Control S           90 - 110           90 - 110           90 - 110           Prep Typ           %Rec.           Limits           90 - 110           Watter           Prep Typ           %Rec.           Limits           90 - 110	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA
Method: 9056A - Anions, Ion Lab Sample ID: MB 280-517731/6 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCS 280-517731/4 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Sulfate Lab Sample ID: LCSD 280-517731 Matrix: Water Analysis Batch: 517731 Analyte Chloride Fluoride Eluoride Eluoride Eluoride	MB Result ND ND ND	MB Qualifier	<b>Spike</b> <b>Added</b> 100 5.00 100 <b>Spike</b> <b>Added</b> 100 5.00	RL 3.00 0.500 5.00	LCS Result 95.22 5.244 93.87 LCSD Result 92.03	MDL Unit mg/L mg/L LCS Qualifier	Clier Unit mg/L mg/L Client Sat	Clie P nt Sar D mple	ent Sam repared mple ID: <u>%Rec</u> <u>95</u> 105 94 ID: Lab <u>%Rec</u> <u>92</u> 102	Pie ID: Me           Prep Typ           Analyze           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           11/22/20 1           * Lab Control S           90 - 110           90 - 110           Prep Typ           %Rec.           Limits           90 - 110           %Rec.           Limits           90 - 110           %Rec.           Limits           90 - 110           90 - 110	ad 5:54 5:54 5:54 5:54 5:54 5:54 5:54 5:5	Blank tal/NA

#### **Client: Basin Electric Power Cooperative** Project/Site: CCR Groundwater - North Dakota Sites

Lab Sample ID: LCSD 280-517731/5

Method: 9056A - Anions, Ion Chromatography (Continued)

# **QC Sample Results**

Job ID: 280-142153-1

Client Sample ID: Lab Control Sample Dup

5

9

Matrix: Water												Prep Ty	pe: Tot	al/NA
Analysis Batch: 517731														
			Spike		LCSD	LCS	D					%Rec.		RPD
Analyte			Added		Result	Qual	lifier	Unit	D	) '	%Rec	Limits	RPD	Limit
Sulfate			100		91.24			mg/L			91	90 - 110	3	10
Lab Sample ID: MRL 280-517731/3								Cli	ent Sa	am	ple ID:	Lab Co	ntrol Sa	ample
Matrix: Water												Prep Ty	pe: Tot	al/NA
Analysis Batch: 517731														
			Spike		MRL	MRL						%Rec.		
Analyte			Added		Result	Qual	lifier	Unit	D	)	%Rec	Limits		
Chloride			5.00		4.105			mg/L			82	50 - 150		
Fluoride			0.500		0.5359			mg/L			107	50 - 150		
Sulfate			5.00		ND			mg/L			98	50 - 150		
_ Lab Sample ID: MB 280-518080/6									Cli	ier	nt Sam	nle ID: N	lethod	Blank
Matrix: Water												Pren Tv	ne <sup>.</sup> Tot	al/NA
Analysis Batch: 518080													po. 10	
Analysis Baton. 010000	мв	мв												
Analyte	Result	Qualifier		RI		мпі	Unit		пι	Pre	enared	Analy	zed	Dil Fac
Chloride		quamor		3 00	·		ma/l				pulou	11/24/20	22.48	1
Sulfate	ND			5.00			ma/l					11/24/20	22.48	1
				0.00			<u>g</u> , _							•
Lab Sample ID: LCS 280-518080/4								Cli	ent Sa	am	ple ID:	Lab Co	ntrol Sa	ample
Matrix: Water												Prep Tv	pe: Tot	al/NA
Analysis Batch: 518080														
			Spike		LCS	LCS						%Rec.		
Analyte			Added		Result	Qual	lifier	Unit	D	)	%Rec	Limits		
Chloride			100		96.36			mg/L			96	90 - 110		
Sulfate			100		93.77			mg/L			94	90 - 110		
-								5						
Lab Sample ID: LCSD 280-518080/5	5						C	lient S	ample	e I	D: Lab	Control	Sample	e Dup
Matrix: Water												Prep Ty	pe: Tot	al/NA
Analysis Batch: 518080														
			Spike		LCSD	LCS	D					%Rec.		RPD
Analyte			Added		Result	Qual	lifier	Unit	D	)	%Rec	Limits	RPD	Limit
Chloride			100		96.71			mg/L			97	90 - 110	0	10
Sulfate			100		94.12			mg/L			94	90 - 110	0	10
Lab Sample ID: MRL 280-518080/3								Cli	ent Sa	am	ple ID	Lab Co	ntrol Sa	ample
Matrix: Water												Pren Tu	ne Tol	al/NA
Analysis Batch: 518080												1150 13	pc. 10	
Analysis Baton. 010000														

	Spike	MRL	MRL				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	5.00	4.005		mg/L		80	50 - 150	 
Sulfate	5.00	ND		mg/L		86	50 - 150	
# **QC Sample Results**

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites Job ID: 280-142153-1

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

Lab Sample ID: MB 280-515306/2 Matrix: Water Analysis Batch: 515306									C	Clie	ent Sam	ple ID: Metho Prep Type: T	d Blank otal/NA
Analysis Daten. 515500	мв	мв											
Analyte	Result	Qualifier		RL		MDL	Unit		D	Pi	repared	Analvzed	Dil Fac
Total Dissolved Solids (TDS)	ND			10.0			mg/L					11/03/20 19:47	1
Lab Sample ID: LCS 280-515306/1 Matrix: Water								Cli	ent S	Sar	nple ID:	Lab Control Prep Type: T	Sample otal/NA
Analysis Batch: 515306													
			Spike		LCS	LCS						%Rec.	
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits	
Total Dissolved Solids (TDS)			501		517.0			mg/L		_	103	93 - 110	
Lab Sample ID: MB 280-515433/2 Matrix: Water Analysis Batch: 515433									C	lie	ent Sam	ple ID: Metho Prep Type: T	d Blank otal/NA
	МВ	МВ											
Analyte	Result	Qualifier		RL		MDL	Unit		D	Pi	repared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND			10.0			mg/L				-	11/04/20 16:11	1
Lab Sample ID: LCS 280-515433/1 Matrix: Water Analysis Batch: 515433								Cli	ent S	Sar	nple ID:	Lab Control Prep Type: T	Sample otal/NA
-			Spike		LCS	LCS						%Rec.	
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits	
Total Dissolved Solids (TDS)			501		516.0			mg/L		_	103	93 - 110	

# **QC** Association Summary

Prep Type

Total Recoverable

**Total Recoverable** 

Total Recoverable

**Total Recoverable** 

Total Recoverable

**Total Recoverable** 

**Total Recoverable** 

**Total Recoverable** 

Total Recoverable

Matrix

Water

Water

Water

Water

Water

Water

Water

Water

Water

**Client: Basin Electric Power Cooperative** Project/Site: CCR Groundwater - North Dakota Sites

**Client Sample ID** 

MW17 (5)

MW15 (6)

MW20 (5)

MW16 (5)

MW19 (6)

MW18 (5)

DUPLICATE

Method Blank

Lab Control Sample

Job ID: 280-142153-1

Method

3005A

3005A

3005A

3005A

3005A

3005A

3005A

3005A

3005A

Prep Batch

#### Analysis Batch: 516571

**Metals** 

Prep Batch: 516251

Lab Sample ID

280-142153-1

280-142153-2

280-142153-3

280-142153-4

280-142153-5

280-142153-6

280-142153-7

MB 280-516251/1-A

LCS 280-516251/2-A

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	1
280-142153-1	MW17 (5)	Total Recoverable	Water	6010C	516251	Ш
280-142153-2	MW15 (6)	Total Recoverable	Water	6010C	516251	
280-142153-3	MW20 (5)	Total Recoverable	Water	6010C	516251	
280-142153-4	MW16 (5)	Total Recoverable	Water	6010C	516251	
280-142153-5	MW19 (6)	Total Recoverable	Water	6010C	516251	
280-142153-6	DUPLICATE	Total Recoverable	Water	6010C	516251	
280-142153-7	MW18 (5)	Total Recoverable	Water	6010C	516251	
MB 280-516251/1-A	Method Blank	Total Recoverable	Water	6010C	516251	
LCS 280-516251/2-A	Lab Control Sample	Total Recoverable	Water	6010C	516251	

#### Analysis Batch: 516981

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-142153-1	MW17 (5)	Total Recoverable	Water	6010C	516251
280-142153-2	MW15 (6)	Total Recoverable	Water	6010C	516251
280-142153-3	MW20 (5)	Total Recoverable	Water	6010C	516251
280-142153-4	MW16 (5)	Total Recoverable	Water	6010C	516251
280-142153-5	MW19 (6)	Total Recoverable	Water	6010C	516251
280-142153-6	DUPLICATE	Total Recoverable	Water	6010C	516251
280-142153-7	MW18 (5)	Total Recoverable	Water	6010C	516251
MB 280-516251/1-A	Method Blank	Total Recoverable	Water	6010C	516251
LCS 280-516251/2-A	Lab Control Sample	Total Recoverable	Water	6010C	516251

#### **General Chemistry**

#### Analysis Batch: 515306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142153-1	MW17 (5)	Total/NA	Water	SM 2540C	
280-142153-2	MW15 (6)	Total/NA	Water	SM 2540C	
280-142153-3	MW20 (5)	Total/NA	Water	SM 2540C	
280-142153-4	MW16 (5)	Total/NA	Water	SM 2540C	
280-142153-5	MW19 (6)	Total/NA	Water	SM 2540C	
280-142153-6	DUPLICATE	Total/NA	Water	SM 2540C	
MB 280-515306/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-515306/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Lab Sample ID **Client Sample ID** Prep Type Matrix Method **Prep Batch** 280-142153-7 Total/NA SM 2540C MW18 (5) Water MB 280-515433/2 Method Blank Total/NA Water SM 2540C

#### Eurofins TestAmerica, Denver

# **QC Association Summary**

#### Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

#### Job ID: 280-142153-1

#### General Chemistry (Continued)

#### Analysis Batch: 515433 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-515433/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Analysis Batch: 517731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142153-1	MW17 (5)	Total/NA	Water	9056A	
280-142153-1	MW17 (5)	Total/NA	Water	9056A	
280-142153-2	MW15 (6)	Total/NA	Water	9056A	
280-142153-2	MW15 (6)	Total/NA	Water	9056A	
280-142153-3	MW20 (5)	Total/NA	Water	9056A	
280-142153-4	MW16 (5)	Total/NA	Water	9056A	
280-142153-5	MW19 (6)	Total/NA	Water	9056A	
280-142153-5	MW19 (6)	Total/NA	Water	9056A	
280-142153-6	DUPLICATE	Total/NA	Water	9056A	
280-142153-6	DUPLICATE	Total/NA	Water	9056A	
280-142153-7	MW18 (5)	Total/NA	Water	9056A	
MB 280-517731/6	Method Blank	Total/NA	Water	9056A	
LCS 280-517731/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-517731/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-517731/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142153-7	MW18 (5)	Total/NA	Water	9056A	
280-142153-7	MW18 (5)	Total/NA	Water	9056A	
MB 280-518080/6	Method Blank	Total/NA	Water	9056A	
LCS 280-518080/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-518080/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-518080/3	Lab Control Sample	Total/NA	Water	9056A	

**Client: Basin Electric Power Cooperative** Project/Site: CCR Groundwater - North Dakota Sites

#### Lab Sample ID: 280-142153-1 Matrix: Water

#### Date Collected: 10/28/20 08:50 Date Received: 10/30/20 09:40

Client Sample ID: MW17 (5)

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 20:50	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 16:43	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 19:36	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	517731	11/22/20 19:52	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN

#### Client Sample ID: MW15 (6) Date Collected: 10/28/20 11:10 Date Received: 10/30/20 09:40

Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed 3005A 516251 11/12/20 08:19 MAB **Total Recoverable** Prep 50 mL 50 mL 6010C **Total Recoverable** Analysis 1 516571 11/12/20 20:53 LMT Total Recoverable Prep 3005A 50 mL 516251 11/12/20 08:19 MAB 50 mL Total Recoverable Analysis 6010C 516981 11/16/20 16:47 LMT 1 Total/NA 9056A Analysis 1 5 mL 5 mL 517731 11/22/20 20:09 CJ 11/22/20 20:25 CJ Total/NA

5

1

#### Client Sample ID: MW20 (5) Date Collected: 10/28/20 10:30 Date Received: 10/30/20 09:40

Total/NA

Analysis

Analysis

9056A

SM 2540C

# Lab Sample ID: 280-142153-3

Lab Sample ID: 280-142153-4

11/03/20 19:47 SVC

Lab Sample ID: 280-142153-2

Analyst

Matrix: Water

Matrix: Water

Matrix: Water

Lab

TAL DEN

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 20:57	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 16:52	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 20:42	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN

5 mL

40 mL

5 mL

100 mL

517731

515306

#### Client Sample ID: MW16 (5) Date Collected: 10/28/20 09:55 Date Received: 10/30/20 09:40

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 21:00	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 16:55	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 22:53	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN

Eurofins TestAmerica, Denver

5

1

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

# Lab Sample ID: 280-142153-5

**Matrix: Water** 

5

11 12 13

#### Client Sample ID: MW19 (6) Date Collected: 10/28/20 13:20 Date Received: 10/30/20 09:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 21:03	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 16:59	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 23:26	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	517731	11/22/20 23:42	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN

#### **Client Sample ID: DUPLICATE** Date Collected: 10/28/20 00:00

Date Received: 10/30/20 09:40

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 21:07	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 17:02	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 23:58	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	517731	11/23/20 00:15	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN

#### Client Sample ID: MW18 (5) Date Collected: 10/28/20 14:45 Date Received: 10/30/20 09:40

# Lab Sample ID: 280-142153-7

Lab Sample ID: 280-142153-6

**Matrix: Water** 

Matrix: Water

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 21:10	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516981	11/16/20 17:05	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/23/20 02:10	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518080	11/25/20 12:57	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	518080	11/25/20 13:13	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	515433	11/04/20 16:11	SVC	TAL DEN

#### Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

12/1/2020

# **Accreditation/Certification Summary**

Client: Basin Electric Power Cooperative Project/Site: CCR Groundwater - North Dakota Sites

## Laboratory: Eurofins TestAmerica, Denver

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

Au	thority	Program	Identification Number	Expiration Date
Nor	th Dakota	State	R-034	01-08-21

Job ID: 280-142153-1

# **Chain of Custody Record**

Contraction         Image: Sec. 1.	Eurotins lestAmerica, Denver 4955 Yarrow Street Arvada, CO 80002 Phone (303) 736-0100 Fax (303) 431-7171	ษ	lain of	f Cust	ody R	ecord			🔅 eurofins	Environment Testing America
Перевода	Client Information	Sampler. MMRCN	Knuts	CK1	Lab P Turn	M. er, Shelby	æ	Carrier Trackin	(g No(s): COC No:	
Constrained         Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>	Client Contact: Mr. Kevin Solie	Phone: 74-74	5 - 72	38	E-Mail Shell	oy.Turner@	gEurofinse	et.com	Page: 1 of	/
Tritter         Constrained         Constrained <thconstrained< th=""> <thconstrained< th=""> <th< td=""><td>Company. Basin Electric Power Cooperative</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Analysis Requested</td><td>nop #</td><td></td></th<></thconstrained<></thconstrained<>	Company. Basin Electric Power Cooperative							Analysis Requested	nop #	
Classical         Consider	Address 1717 East Interstate Avenue	Due Date Requested:				(5 01			Preservation Co	des:
Structure         Structure <t< td=""><td>City Bismarck</td><td>TAT Requested (days</td><td>:(1</td><td></td><td></td><td>eleteM</td><td></td><td>pue 92</td><td>B-NaOH C 7- Arelaig</td><td>M - Revene N - None O - AsNaO2</td></t<>	City Bismarck	TAT Requested (days	:(1			eleteM		pue 92	B-NaOH C 7- Arelaig	M - Revene N - None O - AsNaO2
Transmission         Second Secon	State, Zp: ND, 58503	Standovel				tt lete	(	2-mult		P - Na204S Q - Na2SO3
Construction         Oran	Phone: 701-202-5096(Tel)	Por#: Purchase Order R	AV5 equested	7994	55-02	(0 01 - A0	etette	es ba	pis	k - Na25203 S - H2SO4 T - TSP Dodecahvdrate
Construction         Direction         Direction         Direction         Construction         Construction <thconstruction< th=""> <thconstruction< th=""></thconstruction<></thconstruction<>	Emait ksolie@bepc.com	:# OM				8 OT N 8), 6020	nS 'əpi	280-142153 Chain o	f Custody	U - Acetone V - MCAA
<sup>100</sup> PUS_LANDFLLL         50006         Antificiality         50006         Milling         600         0006           Second fination         Sample Unification         Sample Unification         Sample Unification         Second fination         Second fination           Second fination         Sample Unification         Sample Unification         Sample Unification         Second fination         Second fination           Second fination         Sample Unification         Sample Unification         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination           Second fination         Second fination         Second fination         Second fination         Second fination         Second fination	Project Name: CCR Groundwater - North Dakota Site	Project #. 28021258				10 (Yei es or	, Fluori			W - pH 4-5 Z - other (specify)
Sample function         Sample for file and services         Sample for f	She AVS LANDFILL	SSOW#:				dues	hloride hloride	e8_028	of coi	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Samole Identification	Sample Date	Sample	Sample Type (C=comp, G=orab)	Matrix (www.ater. S=scolid. Omw.asterioid.	Field Filtered Perform MS/M MS/M motal B	9056A_280 - Calcd -	8315_Ra226 7adium-228	TodmuN listo Consil Number	netructions (Note
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	11. 12 20 (s)	10-38-30	1030	9	M	×	XX		7 - HO	77.
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Possible Hazard Identification     Possible Hazard Identification     Possible Hazard Identification       Possible Hazard Identification     Possible Hazard Identification     Possible Hazard Identification       Possible Hazard Identification     Possible Hazard Identification     Possible Hazard Identification       Possible Hazard Identification     Possible Hazard Identification     Possible Hazard Identification       Possible Hazard Identification     Possion B     Unknown     Particle Possion B       Priverable Requested: 1. II. IN. Other (specify)     Possion B     Unknown       Deliverable Requested: 1. II. IN. Other (specify)     Possion B     Possion B       Remoupped by:     Possion B     Possion B     Possion B       Remoustory E     Possion B     Possion B <td>MW 18(5)</td> <td>16-38-30</td> <td>1445</td> <td>9</td> <td>3</td> <td>×</td> <td>×</td> <td></td> <td>1.9 - H4</td> <td>11</td>	MW 18(5)	16-38-30	1445	9	3	×	×		1.9 - H4	11
Possible Hazard Identification     Possible Hazard Identification     Possible Hazard Identification       Possible Hazard Identification     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       Possible Hazard Identification     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       Possible Hazard Identification     Non-Hazard Identification     Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)       Possible Requested: I, II, IN, Wolter (specify)     Empty KI Relimant     Possible Instructions/OC Requirements:     Months       Empty KI Relimation     Internet (Direct Disposal By Lab     Months     Months       Relimation     Internet Disposal By Lab     Months     Company       Relimation of y     Internet Disposal By Lab     Months     Company       Relimation of y     Internet Disposal By Lab     Months     Company										
Possible Hazard Identification       Possible Hazard Identification       Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)         Possible Hazard Identification       Skin Irritent       Poison B       Unknown       Radiological       Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)         Poliverable Requested 1. II. IV. Other (specify)       Deliverable Requested 1. III. N. Other (specify)       Date:       Time:       Mentod Shipment:       Months         Remulsite by:       Lu       Disposal By Lab       Disposal By Lab       Disposal By Lab       Disposal By Lab       Months         Remulsite by:       Lu       Disposal By Lab       Disposal By Lab       Disposal By Lab       Months         Remulsite by:       Lu       Disposal By Lab       Disposal By Lab       Months         Remulsite by:       Lu       Disposal By Lab       Disposal By Lab       Disposal By Lab       Months         Remulsite by:       Lu       Disposal By Lab							+			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Possible Hazard Identification	Poison B	wn DR	adiological		Samp	le Dispos Return To	al ( A fee may be assessed in Client Disposal By	samples are retained longer than	1 1 month) Months
Empty Kit Relinquished by:Date:Time:Method of Singment:Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ $V_{u}$ Relinquished by: $V_{u}$ A Yes< $\Lambda$ No $V_{u}$ $V_{u$	Deliverable Requested: I, II, III, IV, Other (specify)					Speci	al Instructi	ons/QC Requirements:		
Reinquighed by:     Date Time:     Date Time:     Date Time:     Detertime:     Company       Reinquighed by:     1 6 - 3q - 3d     C 15 3     C 0 74 0     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       Reinquished by:     Date Time:     Date Time:     Date Time:     C 0 74 0     C 0 74 0       A Yes: A No     A Yes: A No     A Yes: A No     A Yes: A No     C 10 73 d / 20     A Yes: A No	Empty Kit Relinquished by:		Date:			Time:		a Method	I of Shipment.	
Reinquished by:     Date/Time:     Date/Time:     Company       A Yes: A No     / Scy///SAS     // Scy///SAS     // Scy///2019	Relinquighed by Kunter	Date/Time: 16-34-30	1 01	5,0	Company	<u>R</u>	sceived by:	LOUD AL	Date Tibl 30 / 20 0940	Company-PEN
Reinquished by     Date/Time:     Date/Time:     Company       Received by     Custody Seals Intact:     Cu	Relinquished by:	Date/Time:			Company	æ	sceived by:		Date/Time:	Company
Custody Seals intact: Custody Seal No: 1341835 Cooler Temperatures Card Other Remarks 28 10/30/20 Ver: 01/16/2019	Relinquished by	Date/Time:			Company	ά.	sceived by:		Date/Time:	Company
Ver: 01/16/2019	Custody Seals Intact Custody Seal No: 13418	885-				Ŭ	ooler Temper	rature(s) "C and Other Remarks	RP 10/30/20	
										Ver: 01/16/2019

12 13 14



### Login Sample Receipt Checklist

#### Client: Basin Electric Power Cooperative

#### Login Number: 142153 List Number: 1 Creator: Turner, Shelby R

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	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	

Job Number: 280-142153-1

List Source: Eurofins TestAmerica, Denver