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

Quality information

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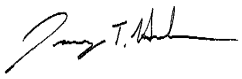			
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Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

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List of Acronyms

ACMs	Assessment of Corrective Measures
AECOM	AECOM Technical Services, Inc.
AVS	Antelope Valley Station
Basin	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 $1.65x10^{-4}$ to $2.48x10^{-9}$ 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 site-specific 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 groundwater sampling event completed in April 2018 then twice annually thereafter. The results of 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 issued on January 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[1]; EPA 2009[2]; and ASTM 2017[3] 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.

[1] 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.
[2] 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.
[3] 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.

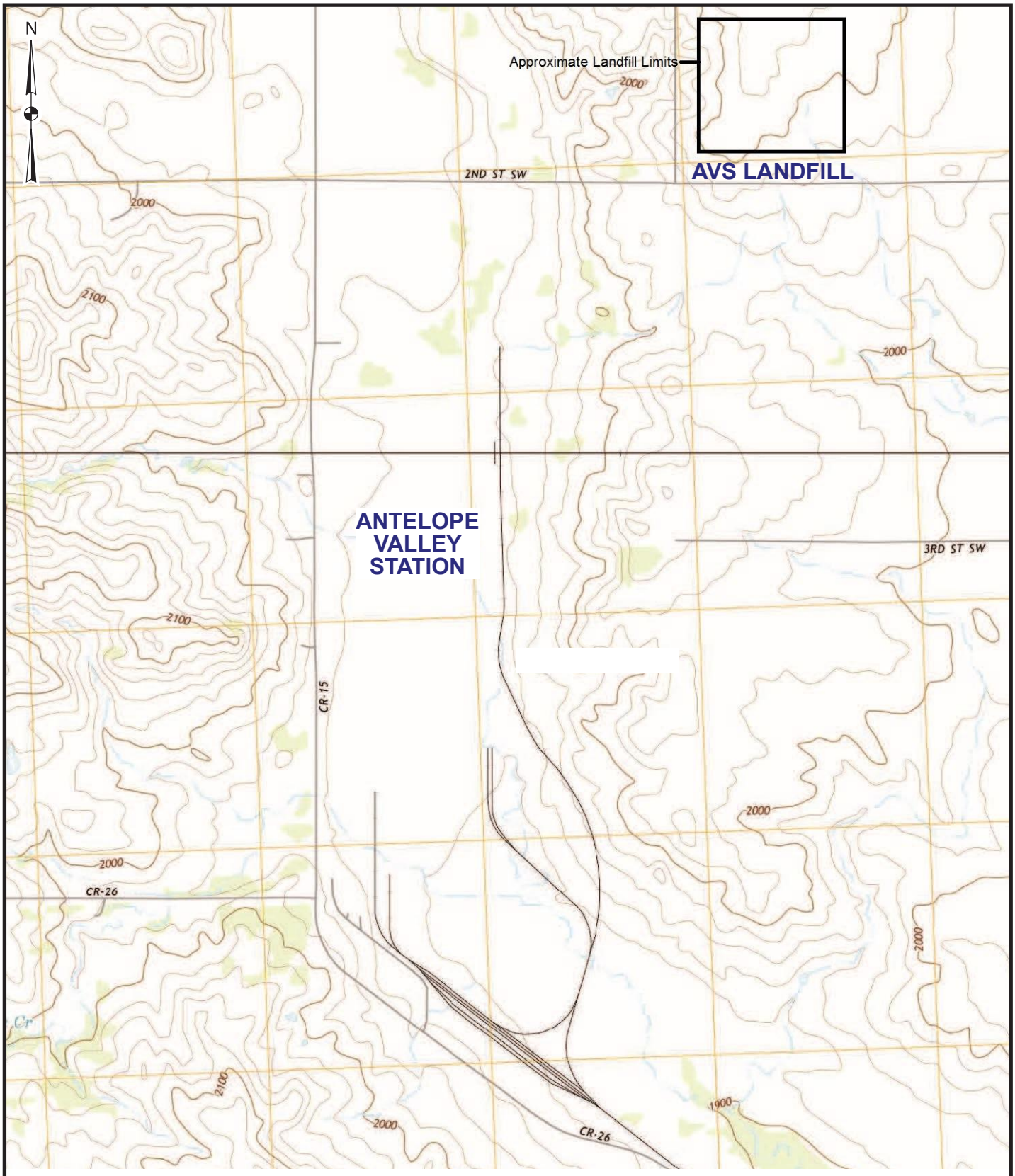
AECOM. 2018b. First Annual Groundwater Monitoring and Corrective Action Report, 2016-2017, Antelope Valley Station, Beulah, North Dakota. Basin Electric Power Cooperative. January 2018.

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



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0 2,000 4,000

APPROXIMATE SCALE IN FEET

ND

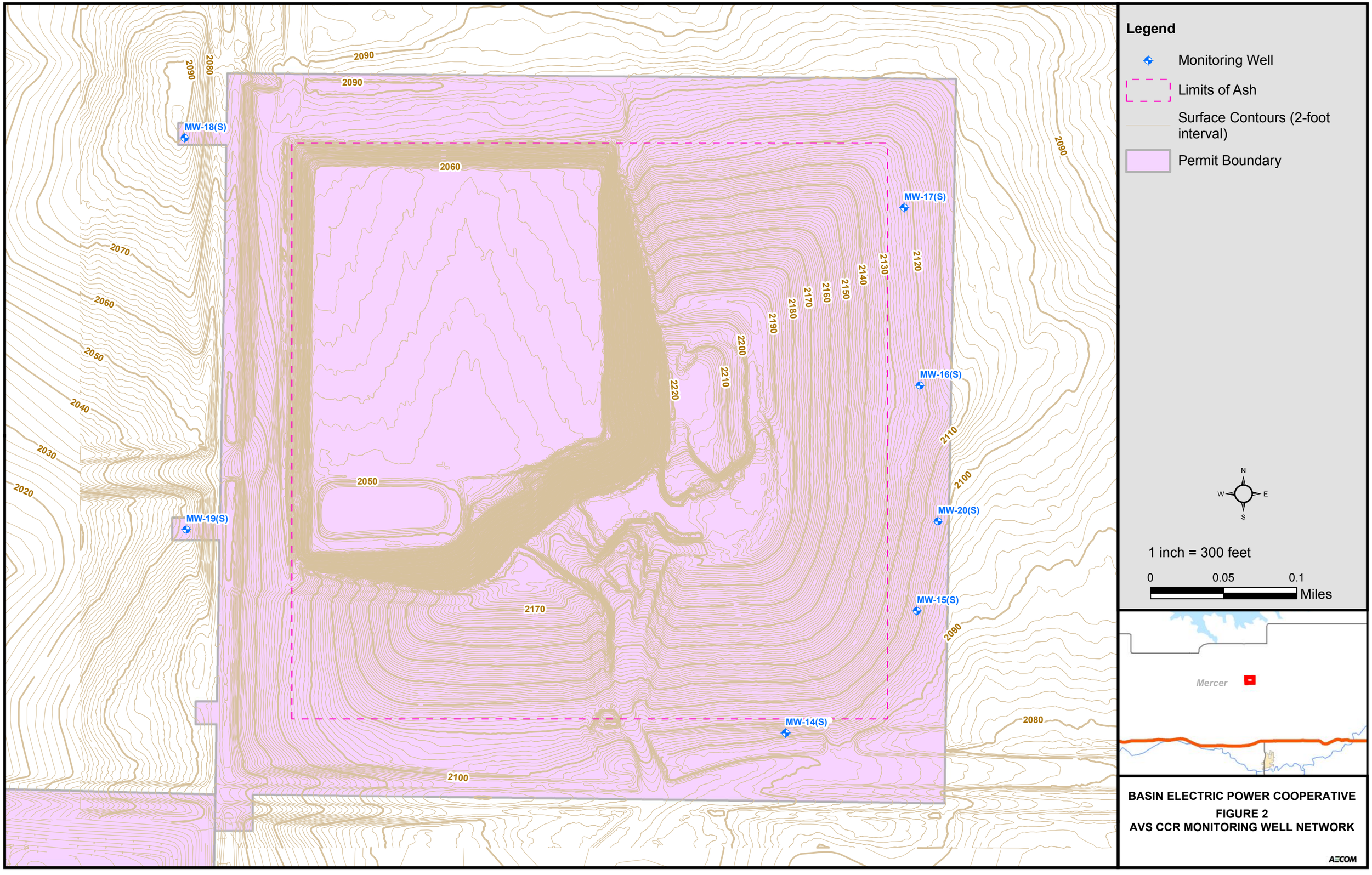
Quadrangle Location

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

BASIN ELECTRIC POWER COOPERATIVE

FIGURE 1
SITE LOCATION MAP
ANTELOPE VALLEY STATION LANDFILL

AECOM



Legend

- Monitoring Well
- Limits of Ash
- Surface Contours (2-foot interval)
- Permit Boundary

N
W E
S

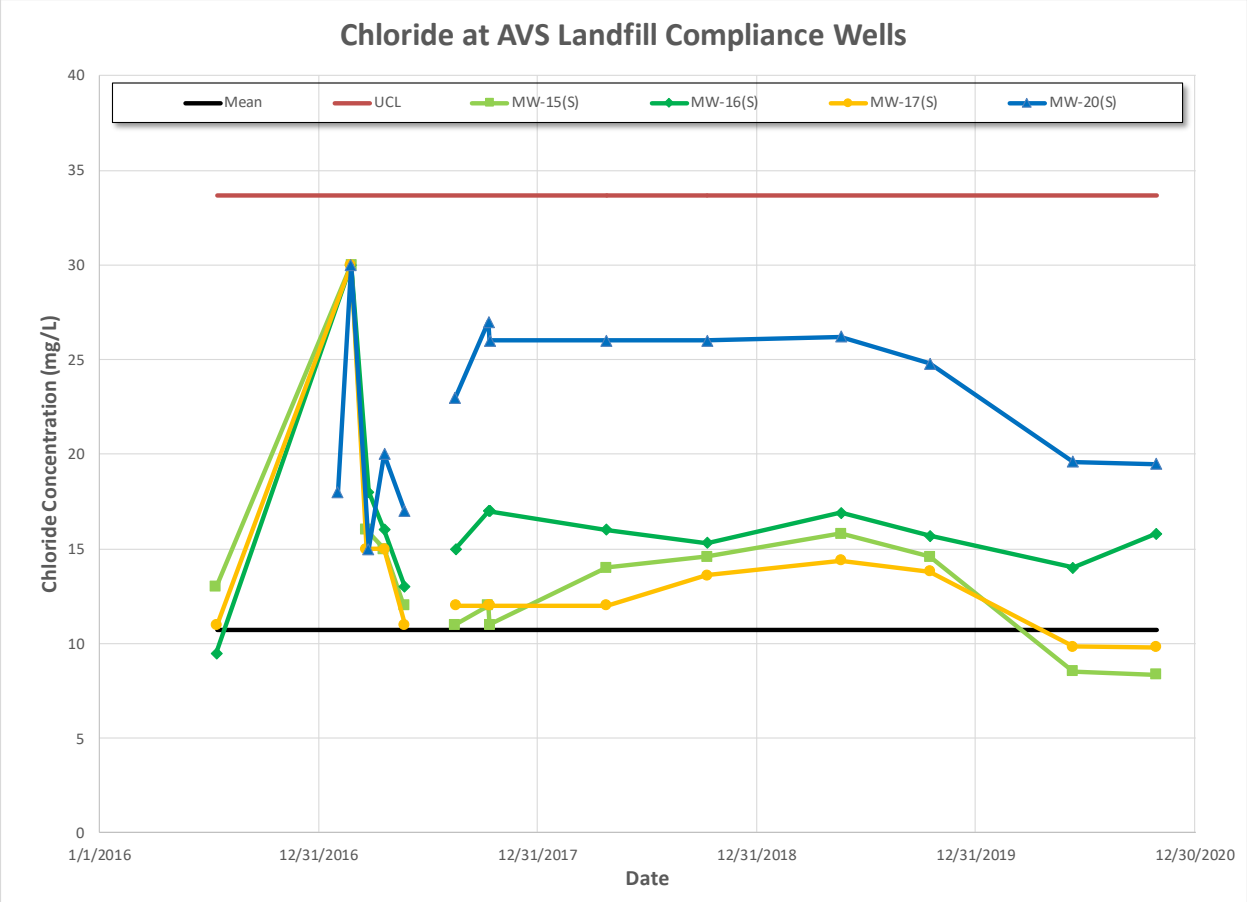
1 inch = 300 feet

0 0.05 0.1 Miles

BASIN ELECTRIC POWER COOPERATIVE
FIGURE 2
AVS CCR MONITORING WELL NETWORK

AECOM

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

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Project 60635022

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Figures

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Appendix

List of Acronyms

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

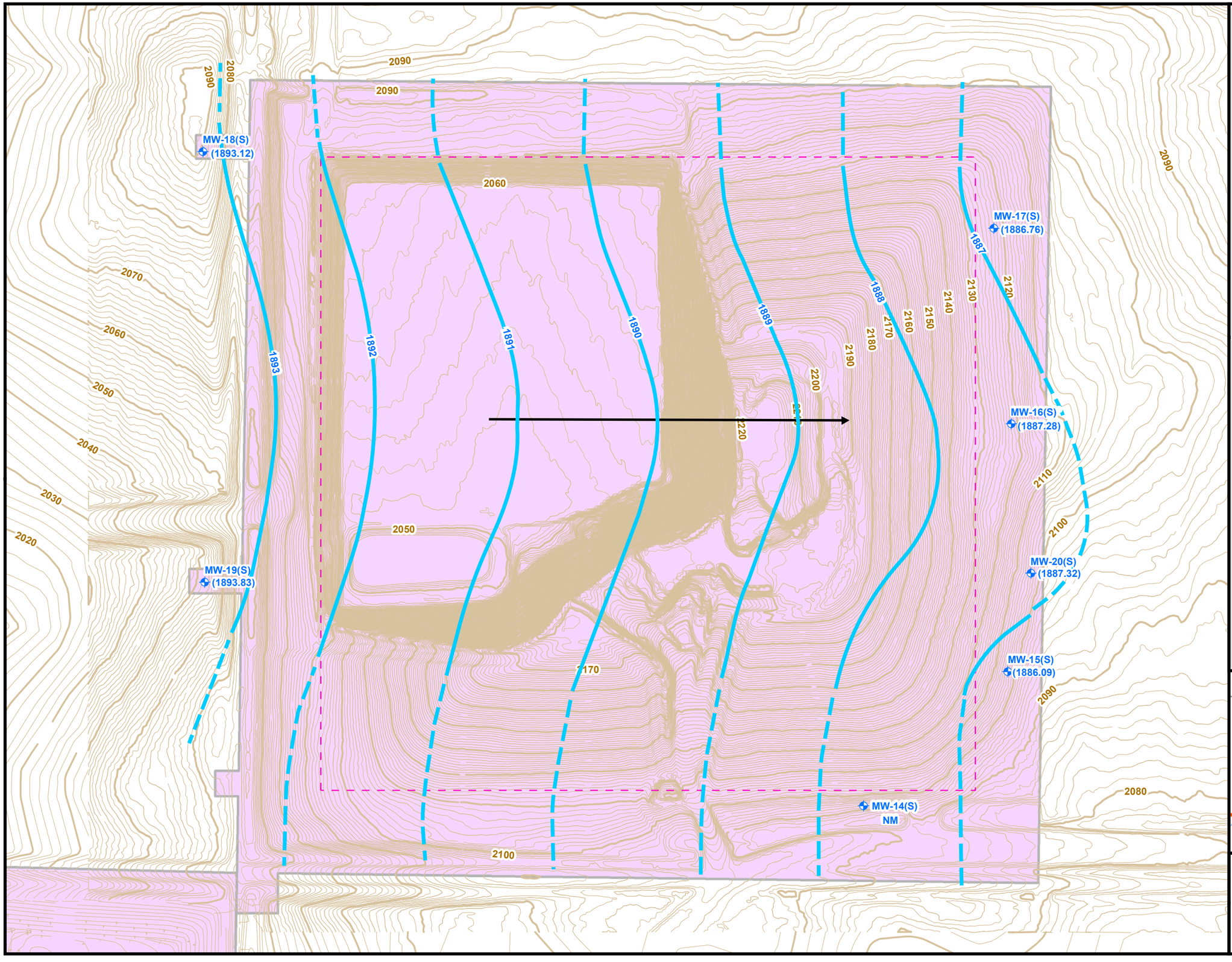
CCR unit	Background wells	Downgradient wells
Landfill	MW-18(S), MW-19(S)	MW15(S), MW-16(S), MW-17(S), MW-20(S)

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



Legend

- Monitoring Well
- Limits of Ash
- Surface Contours (2-foot interval)
- Permit Boundary
- Piezometric Surface Contour Dashed where inferred (1-foot interval)
- Groundwater Flow Direction

Note: Groundwater elevations were obtained on June 10, 2020.

N
W E
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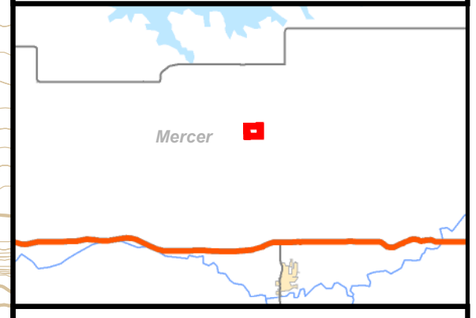
1 inch = 300 feet

0 0.05 0.1 Miles



BASIN ELECTRIC POWER COOPERATIVE
FIGURE 1
POTENTIOMETRIC SURFACE MAP
June 10, 2020

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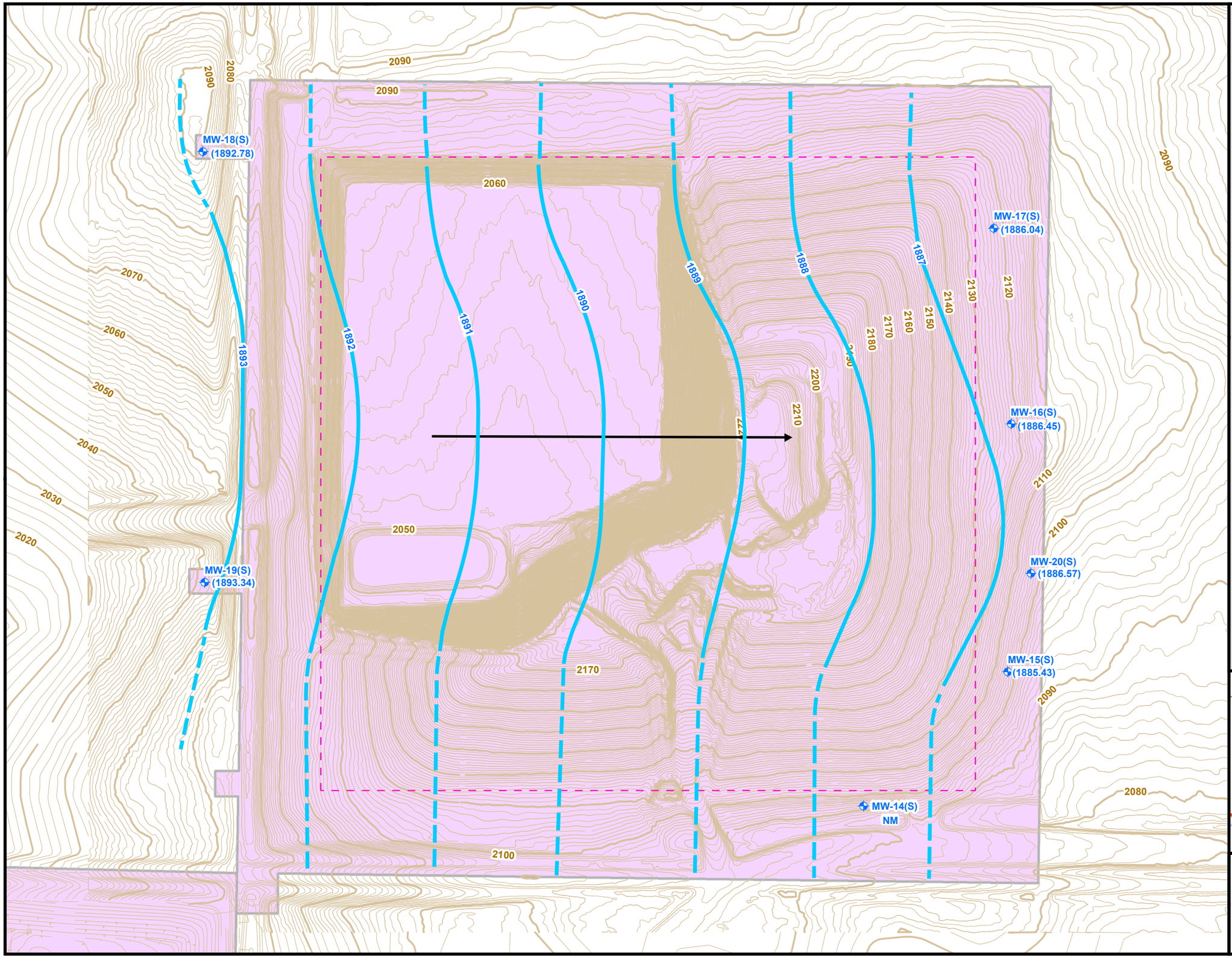

Legend

- Monitoring Well
- Limits of Ash
- Surface Contours (2-foot interval)
- Permit Boundary
- Piezometric Surface Contour Dashed where inferred (1-foot interval)
- Groundwater Flow Direction

Note: Groundwater elevations were obtained on October 27, 2020.

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W E
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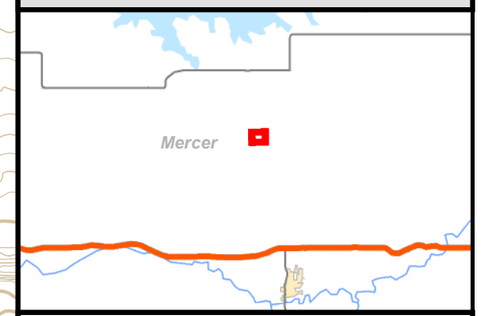
1 inch = 300 feet

0 0.05 0.1 Miles



BASIN ELECTRIC POWER COOPERATIVE
FIGURE 2
POTENTIOMETRIC SURFACE MAP
October 27, 2020

JOB NO. 60635022 AECOM

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 (feet, NAVD 88)	June 10, 2020 Depth to Water (feet)	June 10, 2020 Groundwater Elevation (feet, NAVD 88)	October 27, 2020 Depth to Water (feet)	October 27, 2020 Groundwater Elevation (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
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
MW-19(S)	2042.68	148.85	1893.83	149.34	1893.34
MW-20(S)	2107.57	220.25	1887.32	221.00	1886.57

Notes:
NAVD 88 - North American Verticle Datum 1988

TABLE 2

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

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

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

d_h = Change in hydraulic head between upgradient and downgradient locations

i = Hydraulic gradient (change in elevation over distance)

n_e = Site average porosity of 18.5%

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

v_s = Seepage Velocity (ft/day)

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

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

Table 3

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

			Appendix III Constituents						
Well ID	Event	Date	Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	Total Dissolved Solids mg/L
MW-15(S)	June 2020	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

Table of Contents

Definitions/Glossary

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

Job ID: 280-137631-1

Qualifiers

General Chemistry

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

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

Job ID: 280-137631-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

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.

RECEIPT

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 5.6º 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: AECOM Technical Services Inc.
Project/Site: AVS Landfill

Job ID: 280-137631-1

Client Sample ID: MW-18(S) — Lab Sample ID: 280-137631-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	13.0		0.200	0.0778	mg/L	1		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 — Lab Sample ID: 280-137631-2

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) — Lab Sample ID: 280-137631-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	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) — Lab Sample ID: 280-137631-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	6.68		0.200	0.0778	mg/L	1		6010C	Total/NA
Boron	0.162		0.100	0.00437	mg/L	1		6010C	Total/NA
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) — Lab Sample ID: 280-137631-5

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) — Lab Sample ID: 280-137631-6

Analyte	Result	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.

Detection Summary

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

Job ID: 280-137631-1

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

Lab Sample ID: 280-137631-6

Analyte	Result	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

Job ID: 280-137631-1

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

Sample Summary

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

Job ID: 280-137631-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	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	

Method: 6010C - Metals (ICP)

Client Sample ID: MW-18(S)
Date Collected: 06/11/20 10:20
Date Received: 06/12/20 14:12

Lab Sample ID: 280-137631-1
Matrix: 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
Date Collected: 06/11/20 00:00
Date Received: 06/12/20 14:12

Lab Sample ID: 280-137631-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	13.2		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 07:10	1
Boron	0.123		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:10	1

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

Lab Sample ID: 280-137631-3
Matrix: 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)
Date Collected: 06/11/20 11:55
Date Received: 06/12/20 14:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	6.68		0.200	0.0778	mg/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

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

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	3.61		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 07:34	1
Boron	0.143		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:34	1

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

Lab Sample ID: 280-137631-6
Matrix: Water

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)
Date Collected: 06/11/20 13:00
Date Received: 06/12/20 14:12

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

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
Boron	0.142		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 07:40	1

General Chemistry

Client Sample ID: MW-18(S)
Date Collected: 06/11/20 10:20
Date Received: 06/12/20 14:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.94		3.00	1.02	mg/L			06/23/20 15:48	1
Fluoride	1.29		0.500	0.165	mg/L			06/23/20 15:48	1
Sulfate	346		25.0	5.15	mg/L			06/24/20 16:39	5
Total Dissolved Solids (TDS)	44.0		10.0	4.70	mg/L			06/15/20 15:15	1

Client Sample ID: DUP-3
Date Collected: 06/11/20 00:00
Date Received: 06/12/20 14:12

Lab Sample ID: 280-137631-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.08		3.00	1.02	mg/L			06/23/20 16:04	1
Fluoride	1.37		0.500	0.165	mg/L			06/23/20 16:04	1
Sulfate	330		25.0	5.15	mg/L			06/24/20 16:56	5
Total Dissolved Solids (TDS)	1460		10.0	4.70	mg/L			06/15/20 15:11	1

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

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

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

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

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

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

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.0		3.00	1.02	mg/L			06/23/20 16:53	1
Fluoride	1.62		0.500	0.165	mg/L			06/23/20 16:53	1
Sulfate	70.3		5.00	1.03	mg/L			06/23/20 16:53	1
Total Dissolved Solids (TDS)	1330		10.0	4.70	mg/L			06/15/20 15:15	1

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

Lab Sample ID: 280-137631-6
Matrix: Water

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

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

Job ID: 280-137631-1

General Chemistry

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

Lab Sample ID: 280-137631-7
Matrix: 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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-498858/1-A
Matrix: Water
Analysis Batch: 499563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 498858

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.200	0.0778	mg/L		06/17/20 09:00	06/20/20 06:46	1
Boron	ND		0.100	0.00437	mg/L		06/17/20 09:00	06/20/20 06:46	1

Lab Sample ID: LCS 280-498858/2-A
Matrix: Water
Analysis Batch: 499563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 498858

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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: 280-137631-1 MS
Matrix: Water
Analysis Batch: 499563

Client Sample ID: MW-18(S)
Prep Type: Total/NA
Prep Batch: 498858

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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: 280-137631-1 MSD
Matrix: Water
Analysis Batch: 499563

Client Sample ID: MW-18(S)
Prep Type: Total/NA
Prep Batch: 498858

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	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 280-499766/6
Matrix: Water
Analysis Batch: 499766

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	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 280-499766/4
Matrix: Water
Analysis Batch: 499766

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	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

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

Lab Sample ID: LCSD 280-499766/5
Matrix: Water
Analysis Batch: 499766

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	93.10		mg/L		93	90 - 110	0	10
Fluoride			5.00	5.018		mg/L		100	90 - 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

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

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

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

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	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

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	8.53			8.563		mg/L				0.4	15
Fluoride	1.14			1.145		mg/L				0.2	15
Sulfate	442	E		442.8	E	mg/L				0.1	15

Lab Sample ID: MB 280-499923/6
Matrix: Water
Analysis Batch: 499923

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.00	1.03	mg/L			06/24/20 10:54	1

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

Lab Sample ID: LCS 280-499923/4
Matrix: Water
Analysis Batch: 499923

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			100	96.13		mg/L		96	90 - 110		

Lab Sample ID: LCSD 280-499923/5
Matrix: Water
Analysis Batch: 499923

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate			100	96.06		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-499923/3
Matrix: Water
Analysis Batch: 499923

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			5.00	4.894	J	mg/L		98	50 - 150		

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

Lab Sample ID: MB 280-498800/1
Matrix: Water
Analysis Batch: 498800

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10.0	4.70	mg/L			06/15/20 15:11	1

Lab Sample ID: LCS 280-498800/2
Matrix: Water
Analysis Batch: 498800

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids (TDS)			500	496.0		mg/L		99	93 - 110		

Lab Sample ID: LCSD 280-498800/3
Matrix: Water
Analysis Batch: 498800

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			500	493.0		mg/L		99	93 - 110	1	20

Lab Sample ID: MB 280-498802/1
Matrix: Water
Analysis Batch: 498802

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10.0	4.70	mg/L			06/15/20 15:15	1

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

Lab Sample ID: LCS 280-498802/2
Matrix: Water
Analysis Batch: 498802

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	509.0		mg/L		102	93 - 110

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	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	

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	

Lab Chronicle

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

Job ID: 280-137631-1

Client Sample ID: MW-18(S)

Date Collected: 06/11/20 10:20
Date Received: 06/12/20 14:12

Lab Sample ID: 280-137631-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	498858	06/17/20 09:00	NK	TAL DEN
Total/NA	Analysis	6010C		1			499563	06/20/20 06:53	MRJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	499766	06/23/20 15:48	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	499923	06/24/20 16:39	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: DUP-3

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

Lab Sample ID: 280-137631-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	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

Lab Sample ID: 280-137631-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	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

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared 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 Chronicle

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

Job ID: 280-137631-1

Client Sample ID: MW-16(S)

Date Collected: 06/11/20 12:10
Date Received: 06/12/20 14:12

Lab Sample ID: 280-137631-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	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

Lab Sample ID: 280-137631-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	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

Lab Sample ID: 280-137631-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	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

Accreditation/Certification Summary

Client: AECOM Technical Services Inc. Job ID: 280-137631-1
Project/Site: AVS Landfill

Laboratory: Eurofins TestAmerica, Denver

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

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

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

Chain of Custody Record

Denver #280

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Client Information	Sampler: Jeremy Hashman	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-99420-29900.1
Client Contact: Mr. Jason Lach	Phone: 970-530-3418	E-Mail: darlene.bandy@testamericainc.com		Page: Page 1 of 1
Company: AECOM Technical Services Inc.		Analysis Requested		Job #:
Address: 525 Vine Street Suite 1800	Due Date Requested:			Preservation Codes:
City: Cincinnati	TAT Requested (days): Standard			A - HCL, B - NaOH, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: OH, 45202				
Phone: 513-419-3443(Tel)	PO #:			
Email: jason.lach@aecom.com	WO #: 60570072			
Project Name: AVS Landfill	Project #: 28018114			Other:
Site:	SSOW#:			

280-137631 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Boron and Calcium	9056A_28D - Chloride, Fluoride, and Sulfate	2540C_Calcd - TDS	Total Number of conta	Special Instructions/Note:
			Preservation Code:				D	N	N		
MW-18(S)	6/11/20	1020	G	W			X	X	X		pH = 9.95
Dup-3	6/11/20	←	G	W			X	X	X		
MW-19(S)	6/11/20	1130	G	W			X	X	X		pH = 7.95
MW-17(S)	6/11/20	1155	G	W			X	X	X		pH = 8.07
MW-16(S)	6/11/20	1210	G	W			X	X	X		pH = 9.10
MW-20(S)	6/11/20	1245	G	W			X	X	X		pH = 8.01
MW-15(S)	6/11/20	1300	G	W			X	X	X		pH = 7.79

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	6/12/20 1410	AECOM	[signature]	6-12-20 @ 1412	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No | Custody Seal No.: 1305431

Cooler Temperature(s) °C and Other Remarks: 5.3°C IR9 +0.5 GS 6/12/20

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-137631-1

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

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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

Attn: Aaron Knutson

Shelby Turner

Authorized for release by:
12/1/2020 1:43:28 PM

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Glossary

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

Job ID: 280-142153-1

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.

RECEIPT

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 0.2º 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.

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

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

Job ID: 280-142153-1

Client Sample ID: MW17 (5) — Lab Sample ID: 280-142153-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	160		100		ug/L	1		6010C	Total Recoverable
Calcium	5600		200		ug/L	1		6010C	Total Recoverable
Chloride	9.82		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.29		0.500		mg/L	1		9056A	Total/NA
Sulfate	224		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1770		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW15 (6) — Lab Sample ID: 280-142153-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	147		100		ug/L	1		6010C	Total Recoverable
Calcium	6310		200		ug/L	1		6010C	Total Recoverable
Chloride	8.37		3.00		mg/L	1		9056A	Total/NA
Fluoride	1.18		0.500		mg/L	1		9056A	Total/NA
Sulfate	357		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		25.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW20 (5) — Lab Sample ID: 280-142153-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
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) — Lab Sample ID: 280-142153-4

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) — Lab Sample ID: 280-142153-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
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.

Eurofins TestAmerica, Denver

Detection Summary

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

Client Sample ID: MW19 (6) (Continued)
Lab Sample ID: 280-142153-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	2190		25.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUPLICATE
Lab Sample ID: 280-142153-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	153		100		ug/L	1		6010C	Total Recoverable
Calcium	4430		200		ug/L	1		6010C	Total Recoverable
Chloride	11.7		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.592		0.500		mg/L	1		9056A	Total/NA
Sulfate	690		25.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2150		25.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW18 (5)
Lab Sample ID: 280-142153-7

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
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
Job ID: 280-142153-1
Project/Site: CCR Groundwater - North Dakota Sites

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
Job ID: 280-142153-1
Project/Site: CCR Groundwater - North Dakota Sites

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	

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

Client Sample ID: MW17 (5)
Date Collected: 10/28/20 08:50
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-1
Matrix: Water

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)
Date Collected: 10/28/20 11:10
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-2
Matrix: Water

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)
Date Collected: 10/28/20 10:30
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-3
Matrix: Water

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)
Date Collected: 10/28/20 09:55
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-4
Matrix: Water

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)
Date Collected: 10/28/20 13:20
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-5
Matrix: Water

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
Date Collected: 10/28/20 00:00
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-6
Matrix: Water

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)
Date Collected: 10/28/20 14:45
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	120		100		ug/L		11/12/20 08:19	11/12/20 21:10	1
Calcium	5930		200		ug/L		11/12/20 08:19	11/16/20 17:05	1

General Chemistry

Client Sample ID: MW17 (5)
Date Collected: 10/28/20 08:50
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.82		3.00		mg/L			11/22/20 19:36	1
Fluoride	1.29		0.500		mg/L			11/22/20 19:36	1
Sulfate	224		25.0		mg/L			11/22/20 19:52	5
Total Dissolved Solids (TDS)	1770		20.0		mg/L			11/03/20 19:47	1

Client Sample ID: MW15 (6)
Date Collected: 10/28/20 11:10
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.37		3.00		mg/L			11/22/20 20:09	1
Fluoride	1.18		0.500		mg/L			11/22/20 20:09	1
Sulfate	357		25.0		mg/L			11/22/20 20:25	5
Total Dissolved Solids (TDS)	1900		25.0		mg/L			11/03/20 19:47	1

Client Sample ID: MW20 (5)
Date Collected: 10/28/20 10:30
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-3
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
Lab Sample ID: 280-142153-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.8		3.00		mg/L			11/22/20 22:53	1
Fluoride	2.26		0.500		mg/L			11/22/20 22:53	1
Sulfate	84.9		5.00		mg/L			11/22/20 22:53	1
Total Dissolved Solids (TDS)	1330		25.0		mg/L			11/03/20 19:47	1

Client Sample ID: MW19 (6)
Date Collected: 10/28/20 13:20
Date Received: 10/30/20 09:40
Lab Sample ID: 280-142153-5
Matrix: Water

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		mg/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
Lab Sample ID: 280-142153-6
Matrix: Water

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: Basin Electric Power Cooperative
Job ID: 280-142153-1
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 Sample ID: 280-142153-7
Matrix: 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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-516251/1-A
Matrix: Water
Analysis Batch: 516571

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 516251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100		ug/L		11/12/20 08:19	11/12/20 20:06	1

Lab Sample ID: MB 280-516251/1-A
Matrix: Water
Analysis Batch: 516981

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 516251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200		ug/L		11/12/20 08:19	11/16/20 16:00	1

Lab Sample ID: LCS 280-516251/2-A
Matrix: Water
Analysis Batch: 516571

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 516251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	978.7		ug/L		98	86 - 110

Lab Sample ID: LCS 280-516251/2-A
Matrix: Water
Analysis Batch: 516981

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 516251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	50320		ug/L		101	90 - 111

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-517731/6
Matrix: Water
Analysis Batch: 517731

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			11/22/20 15:54	1
Fluoride	ND		0.500		mg/L			11/22/20 15:54	1
Sulfate	ND		5.00		mg/L			11/22/20 15:54	1

Lab Sample ID: LCS 280-517731/4
Matrix: Water
Analysis Batch: 517731

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.22		mg/L		95	90 - 110
Fluoride	5.00	5.244		mg/L		105	90 - 110
Sulfate	100	93.87		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-517731/5
Matrix: Water
Analysis Batch: 517731

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	92.03		mg/L		92	90 - 110	3	10
Fluoride	5.00	5.103		mg/L		102	90 - 110	3	10

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

Lab Sample ID: LCSD 280-517731/5
Matrix: Water
Analysis Batch: 517731

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100	91.24		mg/L		91	90 - 110	3	10

Lab Sample ID: MRL 280-517731/3
Matrix: Water
Analysis Batch: 517731

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.105		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
Matrix: Water
Analysis Batch: 518080

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			11/24/20 22:48	1
Sulfate	ND		5.00		mg/L			11/24/20 22:48	1

Lab Sample ID: LCS 280-518080/4
Matrix: Water
Analysis Batch: 518080

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.36		mg/L		96	90 - 110
Sulfate	100	93.77		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-518080/5
Matrix: Water
Analysis Batch: 518080

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	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
Matrix: Water
Analysis Batch: 518080

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

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

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

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10.0		mg/L			11/03/20 19:47	1

Lab Sample ID: LCS 280-515306/1
Matrix: Water
Analysis Batch: 515306

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	517.0		mg/L		103	93 - 110

Lab Sample ID: MB 280-515433/2
Matrix: Water
Analysis Batch: 515433

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10.0		mg/L			11/04/20 16:11	1

Lab Sample ID: LCS 280-515433/1
Matrix: Water
Analysis Batch: 515433

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	516.0		mg/L		103	93 - 110

QC Association Summary

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

Job ID: 280-142153-1

Metals

Prep Batch: 516251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142153-1	MW17 (5)	Total Recoverable	Water	3005A	
280-142153-2	MW15 (6)	Total Recoverable	Water	3005A	
280-142153-3	MW20 (5)	Total Recoverable	Water	3005A	
280-142153-4	MW16 (5)	Total Recoverable	Water	3005A	
280-142153-5	MW19 (6)	Total Recoverable	Water	3005A	
280-142153-6	DUPLICATE	Total Recoverable	Water	3005A	
280-142153-7	MW18 (5)	Total Recoverable	Water	3005A	
MB 280-516251/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-516251/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 516571

Lab Sample ID	Client Sample ID	Prep Type	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

Analysis Batch: 516981

Lab Sample ID	Client Sample ID	Prep Type	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	

Analysis Batch: 515433

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

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	

Analysis Batch: 518080

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	

Lab Chronicle

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

Client Sample ID: MW17 (5)
Lab Sample ID: 280-142153-1
Date Collected: 10/28/20 08:50
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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)
Lab Sample ID: 280-142153-2
Date Collected: 10/28/20 11:10
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	516251	11/12/20 08:19	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			516571	11/12/20 20:53	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 16:47	LMT	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517731	11/22/20 20:09	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	517731	11/22/20 20:25	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: MW20 (5)
Lab Sample ID: 280-142153-3
Date Collected: 10/28/20 10:30
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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

Client Sample ID: MW16 (5)
Lab Sample ID: 280-142153-4
Date Collected: 10/28/20 09:55
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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

Lab Chronicle

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

Client Sample ID: MW19 (6)
Lab Sample ID: 280-142153-5
Date Collected: 10/28/20 13:20
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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
Lab Sample ID: 280-142153-6
Date Collected: 10/28/20 00:00
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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)
Lab Sample ID: 280-142153-7
Date Collected: 10/28/20 14:45
Matrix: Water
Date Received: 10/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	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

Accreditation/Certification Summary

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

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

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Aaron Knutson	Lab PM: Turner, Shelby R	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Kevin Solie	Phone: 701-745-7238	E-Mail: Shelby.Turner@Eurofinset.com		Page: 1 of 1
Company: Basin Electric Power Cooperative				Job #:
Address: 1717 East Interstate Avenue	Due Date Requested:			
City: Bismarck	TAT Requested (days): Standard			
State, Zip: ND, 58503	PO #: AVS Purchase Order Requested 799455-02			
Phone: 701-202-5096(Tel)	WO #:			
Email: ksolie@bepc.com	Project #: 28021258			
Project Name: CCR Groundwater - North Dakota Site	SSOW#:			
Site: AVS LANDFILL				

Analysis Requested

280-142153 Chain of Custody

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Total B, Ca, Li (1 of 3); 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (APP III + IV)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride, Sulfate	9315_Ra226; 9320_Ra228, Combined Radium-226 and Radium-228	Total Number of cor	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW 17 (S)	10-28-20	0850	G	W			X	X	X			pH - 8.40
MW 15 (S)	10-28-20	1110	G	W			X	X	X			pH - 7.56
MW 20 (S)	10-28-20	1030	G	W			X	X	X			pH - 7.77
MW 16 (S)	10-28-20	0955	G	W			X	X	X			pH - 8.46
MW 19 (S)	10-28-20	1320	G	W			X	X	X			pH - 7.80
Duplicate	10-28-20		G	W			X	X	X			
MW 18 (S)	10-28-20	1445	G	W			X	X	X			pH - 9.11

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

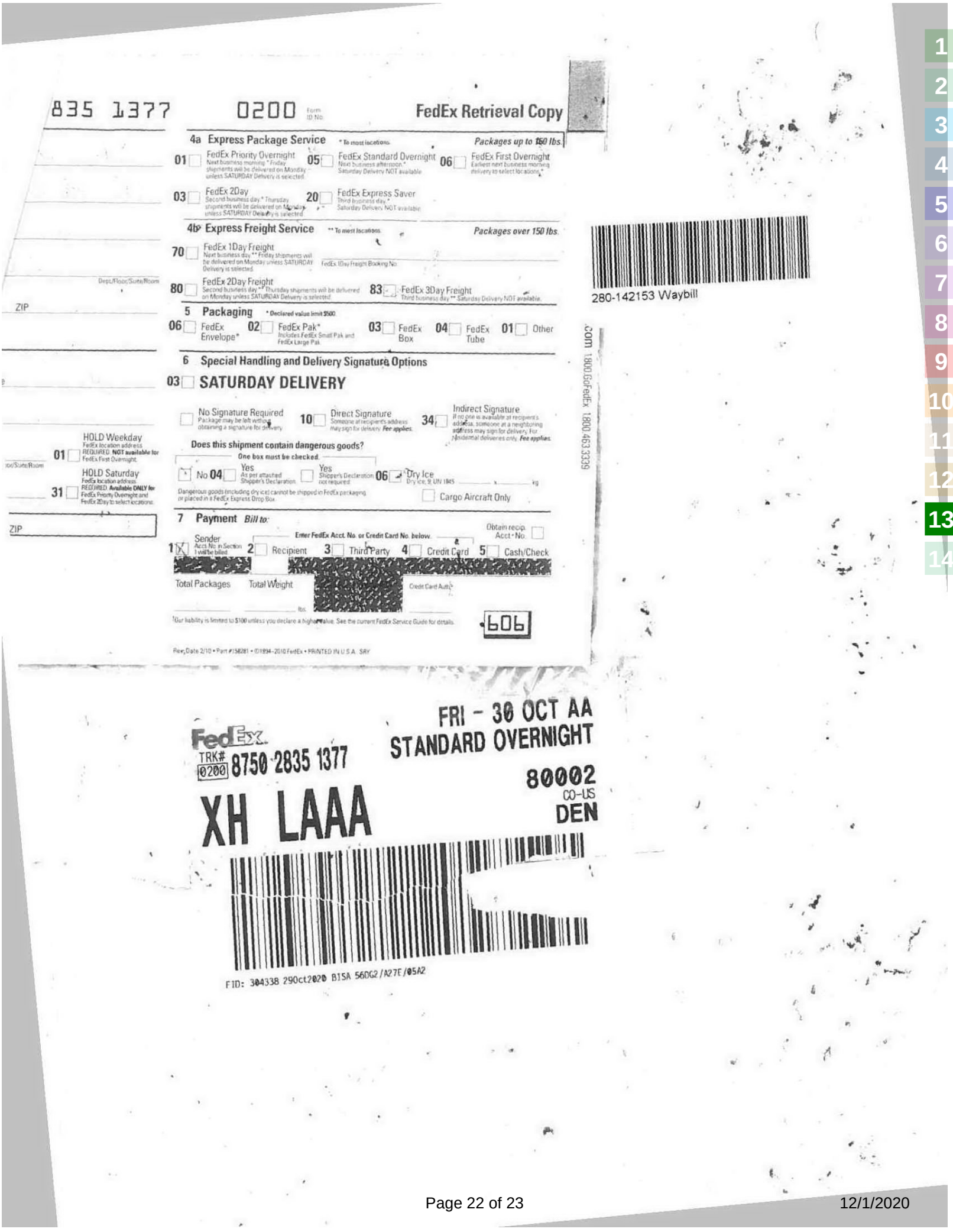
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Aaron Knutson	10-29-20 0752			10/30/20 0940	ETA-Rem
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 1341885

Cooler Temperature(s) °C and Other Remarks: 0.3 IR-11-0.3 RP 10/30/20

Ver: 01/16/2019


835 1377
0200
Form ID No.
FedEx Retrieval Copy
4a Express Package Service
* To most locations.
Packages up to 150 lbs.
01 FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
05 FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.
06 FedEx First Overnight
Earliest next business morning delivery to select locations.*
03 FedEx 2Day
Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
20 FedEx Express Saver
Third business day.* Saturday Delivery NOT available.
4b Express Freight Service
** To most locations.
Packages over 150 lbs.
70 FedEx 1Day Freight
Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
FedEx 1Day Freight Booking No.
80 FedEx 2Day Freight
Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
83 FedEx 3Day Freight
Third business day.** Saturday Delivery NOT available.
5 Packaging
* Declared value limit $500.
06 FedEx Envelope*
02 FedEx Pak* Includes FedEx Small Pak and FedEx Large Pak.
03 FedEx Box
04 FedEx Tube
01 Other
6 Special Handling and Delivery Signature Options
03 SATURDAY DELIVERY
No Signature Required
Package may be left without obtaining a signature for delivery.
10 Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
34 Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.
Does this shipment contain dangerous goods?
One box must be checked.
No 04 Yes As per attached Shipper's Declaration
Yes Shipper's Declaration not required
06 Dry Ice
Dry Ice, 9, UN 1845 x kg
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.
Cargo Aircraft Only
7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
Obtain recip. Acct. No.
1 Sender Acct. No. in Section 1 will be billed.
2 Recipient
3 Third Party
4 Credit Card
5 Cash/Check
Total Packages
Total Weight
lbs.
Credit Card Auth.
Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.
606
Rev. Date 2/10 • Part #158281 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRY
Dept/Floor/Suite/Room
ZIP
HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.
01
HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
31
ZIP
280-142153 Waybill
.com 1800.GoFedEx 1800.463.3339
FedEx
TRK# 0200 8750 2835 1377
FRI - 30 OCT AA
STANDARD OVERNIGHT
80002
CO-US
DEN
XH LAAA
FID: 304338 290ct2020 B1SA 560G2/A27E/05A2

Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-142153-1

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

List Source: Eurofins TestAmerica, Denver

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