
# 2021 Annual Groundwater Monitoring and Corrective Action Report LOS CCR Landfill

Leland Olds Station
Stanton, North Dakota

Basin Electric Power Cooperative

January 31, 2022
Project #60634996

Basin Electric Power Cooperative
Bismarck, North Dakota

## Quality information

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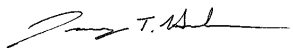
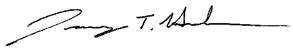
|  |  |  |  |
| Jeremy Hurshman | Jason D. Lach | Dennis P. Connair, P.G. | Jeremy Hurshman |

## Revision History

| Revision | Revision date | Details | Authorized | Name | Position |
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## Figures



## Tables



## Attachments

# List of Acronyms

| | |
|---|---|
| AECOM | AECOM Technical Services, Inc. |
| Basin | Basin Electric Power Cooperative |
| CCR | Coal Combustion Residuals |
| EPA | United States Environmental Protection Agency |
| FGD | flue gas desulfurization |
| ft amsl | feet above mean sea level |
| GWPSs | groundwater protection standards |
| LCL | lower control limits |
| LOS | Leland Olds Station |
| LPL | lower prediction limit |
| mg/L | milligrams per liter |
| RCRA | Resource Conservation and Recovery Act |
| SSI | statistically significant increase |
| 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, 2021 at the Coal Combustion Residuals (CCR) Landfill at Leland Olds Station (LOS), as required by 40 Code of Federal Regulations Section 257.90(e) of the United States Environmental Protection Agency (USEPA) CCR Rule.

The location of the CCR units 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. Accordingly, the unit remains in detection monitoring into the next year.

Detection-mode groundwater monitoring of the CCR Landfill was initiated in 2018. Detection monitoring through October 2021 identified no statistically significant increases (SSIs) of Appendix III indicators of boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids in the downgradient monitoring wells MW-2016-2, MW-2016-9, MW-2016-10, and MW-2016-11.

Other activities and conditions for the 2021 annual reporting period include:

- Semiannual detection-mode groundwater monitoring events were conducted in May and September. Monitoring involved sampling of five 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 Technical Services, Inc. (AECOM) has prepared the 2021 annual report documenting groundwater monitoring and corrective action for the Glenharold Coal Combustion Residuals (CCR) Landfill at Basin's Leland Olds Station (LOS).

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 the current reporting year. Chapter 3 summarizes the groundwater monitoring and corrective action activities completed in the current reporting year, and references attachments to this report that contain detailed documentation of those activities. Chapter 4 reports on general information including program transitions, problems encountered, and anticipated activities for the coming year. 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 of the year following the monitoring period. 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 fifth annual report, and includes activities performed in calendar year 2021.

## Facility Location and Operational History

LOS is a coal-based generating station located southeast of Stanton, North Dakota (**Figure 1**). The plant, which began operating in 1966, consists of two power generating units with a total power output capacity of 669 megawatts.

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

## CCR Unit Description

CCR is disposed at LOS in the following CCR unit:

- CCR Landfill

The CCR Landfill is located approximately 3 miles southwest of the generating units and office complex, in an area of mine spoils (**Figure 1**). Basin reported that in 2021 the LOS CCR Landfill received approximately 263,509 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 thickness, consisting of dense clay, weakly cemented sandstone, mudstone, and lignite beds.

The topography of the surrounding areas consists of alluvial terraces and historic mine spoils. Much of the surrounding mined areas have historically been developed such that precipitation outside of the landfill footprint is generally redirected as surface water runoff toward drainage ditches and culverts that drain to Alderin Creek and ultimately to the Missouri River. Groundwater is recharged primarily through regional infiltration of melt water in the spring.

The base of the LOS CCR Landfill is underlain by approximately 50 feet of clay-rich mine spoil that overlies the Lower Sentinel Butte Formation. At the site, the Sentinel Butte is comprised primarily of dense clay with a trace very fine sand

and sparse 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 located at depths ranging roughly from 86 to 125 feet below ground surface. The elevation of the lignite bed varies across the site by approximately 32 feet from 1,811 feet above mean sea level (ft amsl) at MW-2016-4 to 1,843 ft amsl at MW-2016-1. The potentiometric surface of the uppermost groundwater present within the lignite is approximately 1,880 ft amsl in the southern portion of the Landfill facility sloping generally north-northeast to 1,843 ft amsl on the northern side of the landfill. Aquifer testing completed at monitoring wells MW-2016-4, MW-2016-8, and MW-2016-10 indicates an average hydraulic conductivity of $1.21 \times 10^{-5}$ centimeters per second for the saturated materials.

# 2. CCR Groundwater Monitoring Activity Prior to 2021

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 followed by selection of remedy and remedy implementation.

The following paragraphs provide a brief summary of CCR groundwater monitoring activities performed prior to 2021. CCR groundwater monitoring activities performed between January and December 2021 are discussed in Chapter 3.

Groundwater monitoring at the CCR Landfill 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 LOS CCR Landfill are summarized below:

| CCR unit | Background wells | Downgradient wells |
|---|---|---|
| Landfill | MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, MW-2016-8 | MW-2016-2, MW-2016-9, MW-2016-10, MW-2016-11 |

Two monitoring wells are excluded from the groundwater monitoring network due to deficiencies. Monitoring well MW-2016-1 is excluded 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 map evaluation as appropriate. Monitoring well MW-2016-7 is excluded due to screen interval placement that is not representative of the uppermost aquifer monitoring at the site.

Baseline monitoring, initiated in August 2016, involved sampling groundwater for Appendix III and Appendix 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 LOS CCR Landfill were presented and discussed in the First and Second Annual Groundwater Monitoring and Corrective Action Reports (AECOM 2018b, 2019). The LOS 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 LOS CCR Landfill in 2018, 2019, and 2020 were presented and discussed in the Second, Third, and Fourth Annual Groundwater Monitoring and Corrective Action Reports issued on January 31, 2019 (AECOM 2019), January 31, 2020 (AECOM 2020), and January 31, 2021 (AECOM 2021), respectively.

# 3. CCR Groundwater Monitoring and Corrective Action Activities in 2021

This chapter summarizes the groundwater monitoring and corrective action conducted at the LOS CCR Landfill in 2021 to comply with the groundwater requirements of the CCR rule:

- Groundwater detection monitoring activities
  - monitoring system evaluation completed in May and September 2021
  - groundwater sampling completed in May and September 2021
  - laboratory analysis of groundwater samples in May and September 2021
  - statistical analysis of the monitoring results of the groundwater samples in May and September 2021
- 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 LOS 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 LOS CCR Landfill monitoring system were found to be in good condition during the detection monitoring events conducted in 2021.

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 May and September 2021 was generally north-northeast, 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 2021 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 LOS 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

LOS CCR Landfill, monitoring wells MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, and MW-2016-8 are designated as the background wells because they are located upgradient of the CCR Landfill, whereas the remaining monitoring wells (MW-2016-2, MW-2016-9, MW-2016-10, and MW-2016-11) are located downgradient of the facility.

Prediction limits (i.e., parametric or nonparametric) were developed for each constituent, except boron, based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. Analytical data from the background monitoring wells collected between September 2016 and October 2020 were used to develop an upper prediction limit (UPL) for the Appendix III background data at 95 percent confidence. Two outliers were identified and removed from the background data (calcium [435 milligrams per liter] (mg/L)] and fluoride [3.55 mg/L] collected from in MW-2016-8 in June 2020 and September 2020, respectively). A lower prediction limit (LPL) was also developed for pH which is a two-sided parameter. ProUCL Version 5.1 was used to store the data and run the statistical analyses.

Data from the downgradient monitoring wells through October 2021 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. The results of the analyses, including the UPLs and LPL for pH, are provided in **Table 1**. The statistical analysis results indicate that calcium, chloride, fluoride, pH, sulfate and total dissolved solids do not currently exhibit SSIs over background. pH also does not exhibit an SSI below background. The results of the analyses, including the UPLs (and LPL for pH) are summarized in **Table 1**.

Boron was evaluated using a control chart. Upper and lower control limits (UCLs and LCLs) were developed as the mean ±4.5 standard deviations using the boron data for monitoring wells MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, and MW-2016-8 between September 2016 and October 2020. Starks (1988); EPA (2009); and ASTM (2017) suggest using 4.5 standard deviations to develop control limits for groundwater detection monitoring. **Figure 3** is a control chart that shows the background mean (0.253 mg/L), UCLs and LCLs (0.331 and 0.175 mg/L, respectively), and the baseline and detection monitoring results for downgradient compliance wells MW-2016-2, MW-2016-9, MW-2016-10, and MW-2016-11 through October 2021. The results depicted on **Figure 3** indicate that boron does not exceed the UCL at monitoring wells MW-2016-2, MW-2016-9, MW-2016-10, and MW-2016-11 for any sampling event. Therefore, boron does not currently exhibit an SSI over background at any of the downgradient compliance wells. A summary of the SSIs above background is provided in **Table 2**. Data input files for calculation of UPLs and LPLs are provided in **Attachment B**.

Based on these results, assessment monitoring is not required at the OLS Landfill. Detection monitoring should continue at the LOS Landfill in 2022.

# 4. General Information

The following subsections summarize any problems encountered in the LOS CCR Landfill program through 2021, any resolutions to those problems, if needed, and upcoming actions planned for 2022.

## Program Transitions 2021

There were no groundwater monitoring program transitions for the LOS CCR Landfill monitoring system during the January–December 2021 reporting period.

## Problems Encountered

No problems were encountered during the December–January 2021 monitoring period.

## Actions Planned for 2021

Basin plans on continuing the detection monitoring program for the LOS CCR Landfill in 2022. 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 LOS CCR Landfill between January and December 2021. 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 LOS CCR Landfill. Detection monitoring will continue at the site in 2022.

# 6. References

AECOM Technical Services, Inc. (AECOM). 2017. CCR Groundwater Monitoring System Report, Leland Olds Station, Stanton, North Dakota. Basin Electric Power Cooperative. October 2017.

AECOM. 2018a. Sampling and Analysis Plan, CCR Monitoring Program, Leland Olds Station, Stanton, North Dakota. Basin Electric Power Cooperative. January 2018.

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

AECOM. 2019. Second Annual Groundwater Monitoring and Corrective Action Report, 2018, Leland Olds Station, Stanton, North Dakota. Basin Electric Power Cooperative. January 2019.

AECOM. 2020. Third Annual Groundwater Monitoring and Corrective Action Report, 2019, Leland Olds Station, Stanton, North Dakota. Basin Electric Power Cooperative. January 2020.

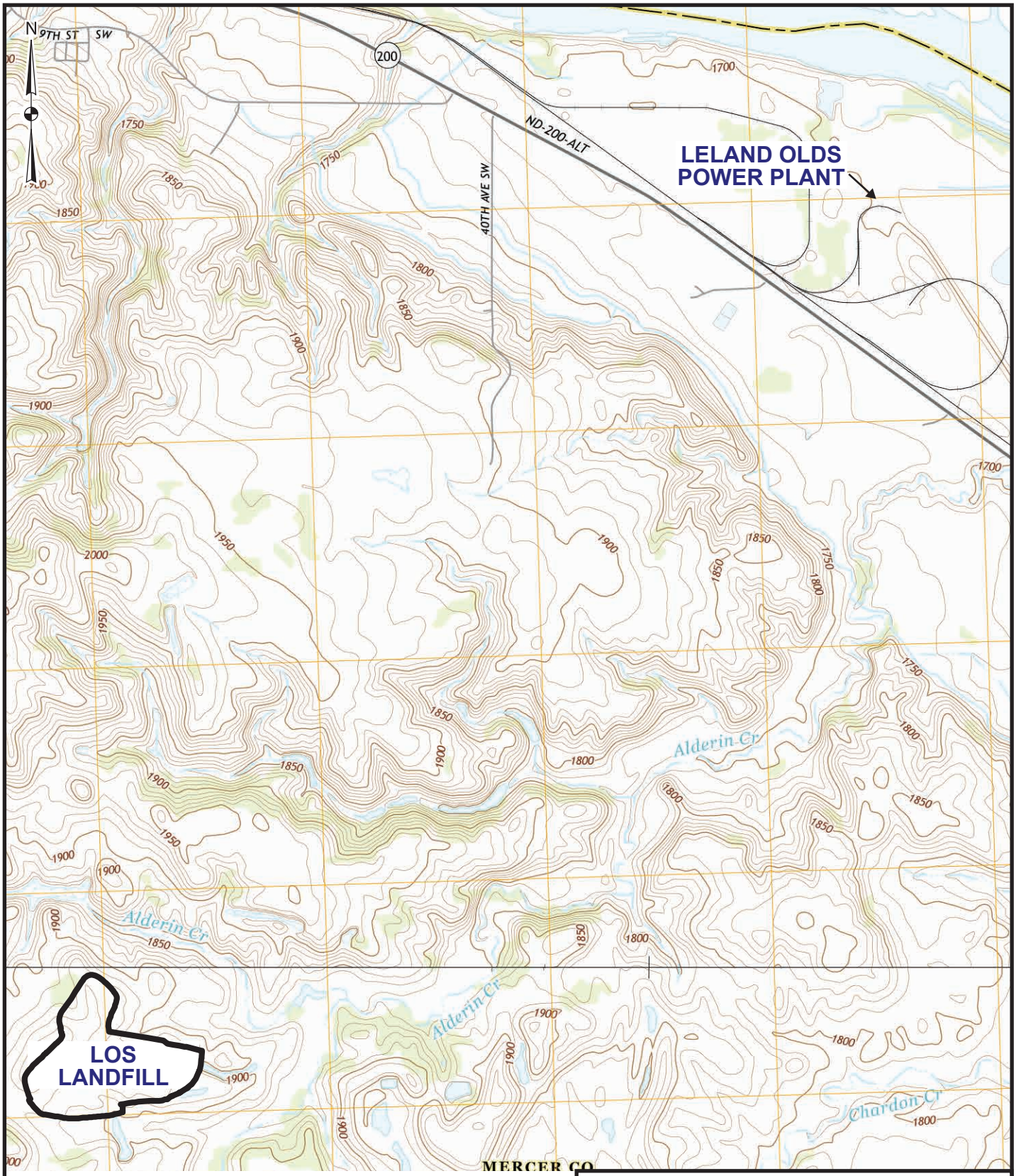
AECOM. 2021. Third Annual Groundwater Monitoring and Corrective Action Report, 2019, Leland Olds Station, Stanton, North Dakota. Basin Electric Power Cooperative. January 2021.

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.

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.

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




J:\Project\B\Basin Electric Coop\60514340 LOS Landfill CCR Well\Data-Tech\TI

0 2,000 4,000

APPROXIMATE SCALE IN FEET

ND

Quadrangle Location

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

# BASIN ELECTRIC POWER COOPERATIVE

FIGURE 1-1
SITE VICINITY MAP
LOS LANDFILL

JOB NO. 60514340

Alderin Creek

Alderin Creek

MW-2016-3

MW-2016-4

MW-2016-9

MW-2016-11

MW-2016-2

MW-2016-10

MW-2016-1

MW-2016-5

MW-2016-6

MW-2016-8

MW-2016-7

## Legend

- Monitoring Well
- Existing Limits of Waste
- Expansion Limits of Waste
- Surface Contours (2-foot interval)

N

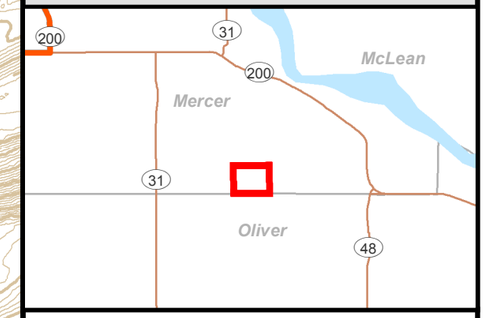
W E

S

1 inch = 400 feet

0 0.05 0.1

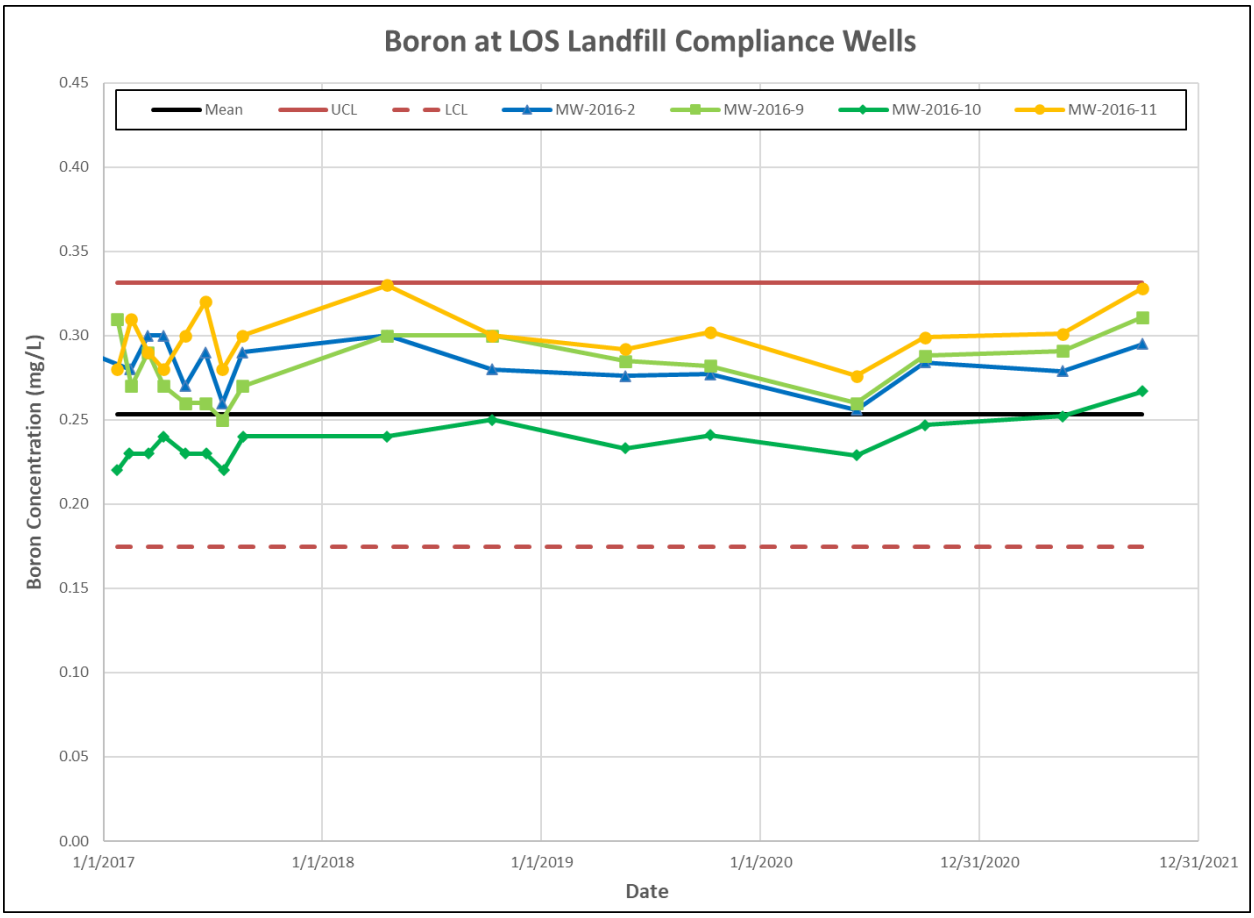
Miles




**BASIN ELECTRIC POWER COOPERATIVE**
**FIGURE 2**
**LOS CCR MONITORING WELL NETWORK**

AECOM

**Figure 3. Boron Control Chart for October 2021**
**2021 Annual Groundwater Monitoring and Corrective Action Report**
**Leland Olds Station CCR Landfill, North Dakota**



# Tables

**Table 1. Background Upper Prediction Limits (UPLs) or Control Limits**
**2021 Annual Groundwater Monitoring and Corrective Action Report**
**Leland Olds Station CCR Landfill, North Dakota**

| Parameter (Units) | Number of Samples | Percent Nondetects | Normal or Lognormal Distribution? | Statistical Method | Background Prediction or Control Limit |
|---|---|---|---|---|---|
| Boron (mg/L) | 71 | 0 | Yes/Yes | Control Chart 99.9% UCL | 0.331 |
| Calcium (mg/L) | 70 | 0 | No/Yes | Parametric 95% UPL | 20.79 |
| Chloride (mg/L) | 71 | 8.5 | No/No | Nonparametric 95% UPL | 38.16 |
| Fluoride (mg/L) | 70 | 41 | No/No | Nonparametric 95% UPL | 2.5 |
| pH (std units) | 83 | 0 | No/No | Nonparametric 95% LPL/UPL | 7.25/8.24 |
| Sulfate (mg/L) | 71 | 0 | No/No | Nonparametric 95% UPL | 741 |
| TDS (mg/L) | 71 | 0 | No/No | Nonparametric 95% UPL | 2,200 |

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

**Table 2. Statistical Method Analysis Results**
**2021 Annual Groundwater Monitoring and Corrective Action Report**
**Leland Olds Station CCR Landfill, North Dakota**

| Well | Location | B | Ca | Cl | F | pH (LPL/UPL) | | $SO_4$ | TDS |
|---|---|---|---|---|---|---|---|---|---|
| MW-2016-2 | Downgradient | | | | | | | | |
| MW-2016-9 | Downgradient | | | | | | | | |
| MW-2016-10 | Downgradient | | | | | | | | |
| MW-2016-11 | Downgradient | | | | | | | | |

**Notes:**

SSIs determined using interwell upper prediction limits (UPLs) at background monitoring wells MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, and MW-2016-8

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

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

Verified SSI over background UPL or below background LPL for pH

# Attachment A
# Sampling and Analysis Report, 2021

AECOM Imagine it. Delivered.

# 2021 Sampling and Analysis Report
# LOS CCR Landfill Monitoring Program

Leland Olds Station
Stanton, North Dakota

Basin Electric Power Cooperative

January 31, 2022

Prepared for:
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# Table of Contents



## Figures



## Tables



## Appendix

# List of Acronyms

| | |
|---|---|
| AECOM | AECOM Technical Services, Inc. |
| Basin | Basin Electric Power Cooperative |
| CCR | Coal Combustion Residuals |
| CFR | Code of Federal Regulations |
| EPA | United States Environmental Protection Agency |
| LOS | Leland Olds Station |

# 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 Leland Olds Station (LOS) CCR Landfill.

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 2021.

# 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 May 17, 2021 and September 27-28, 2021, respectively. The maps and show the inferred groundwater flow directions for the CCR unit, which 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 functions of the monitoring wells employed in the LOS CCR Landfill groundwater monitoring system are as follows:

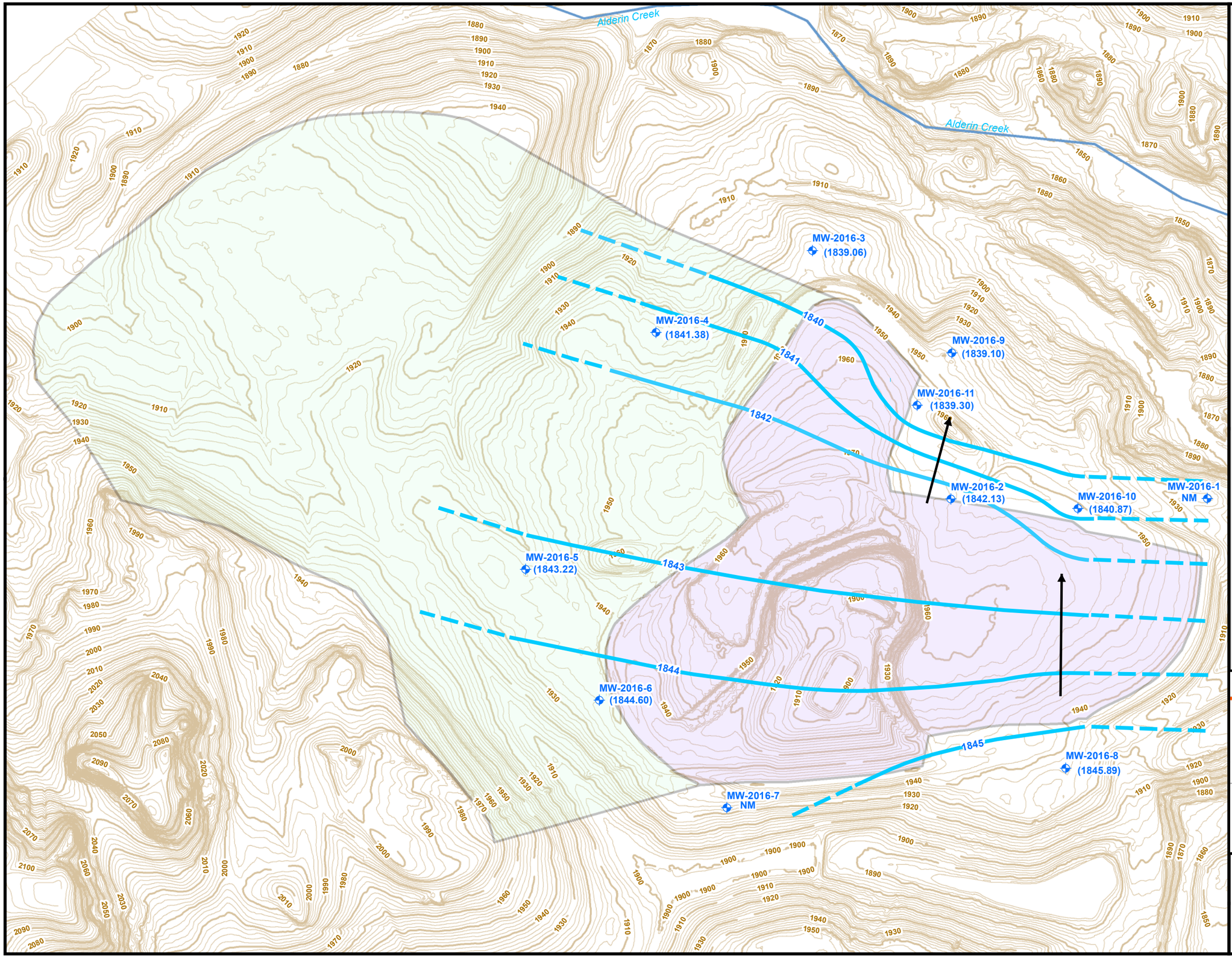
| CCR unit | Background wells | Downgradient wells |
|---|---|---|
| Landfill | MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, MW-2016-8 | MW-2016-2, MW-2016-9, MW-2016-10, MW-2016-11 |

Monitoring wells MW-2016-1 and MW-2017-7 are excluded from the groundwater monitoring network. MW-2016-1 is excluded due to insufficient water production to obtain a representative sample. MW-2016-7 is excluded due to inappropriate screen placement to monitor uppermost groundwater. However, both remain in place for optional collection of groundwater level measurements for potential use in potentiometric mapping as appropriate. Groundwater level measurements at MW-2016-1 and MW-2016-7 were not recorded in 2021.

# 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 that the data was appropriately flagged based on the quality assurance/quality control testing results provided by the laboratory. The results were compiled into a summary form as presented in **Table 3**.

# Figures




**Legend**

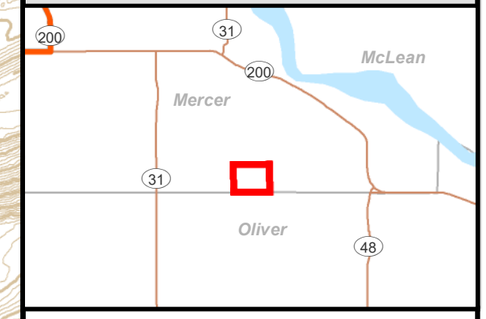
- Monitoring Well
- Existing Limits of Waste
- Expansion Limits of Waste
- Surface Contours (2-foot interval)
- Piezometric Surface Contour Dashed where inferred (1-foot interval)
- Groundwater Flow Direction

Note:
Groundwater elevations were obtained on May 17, 2021

N
W E
S

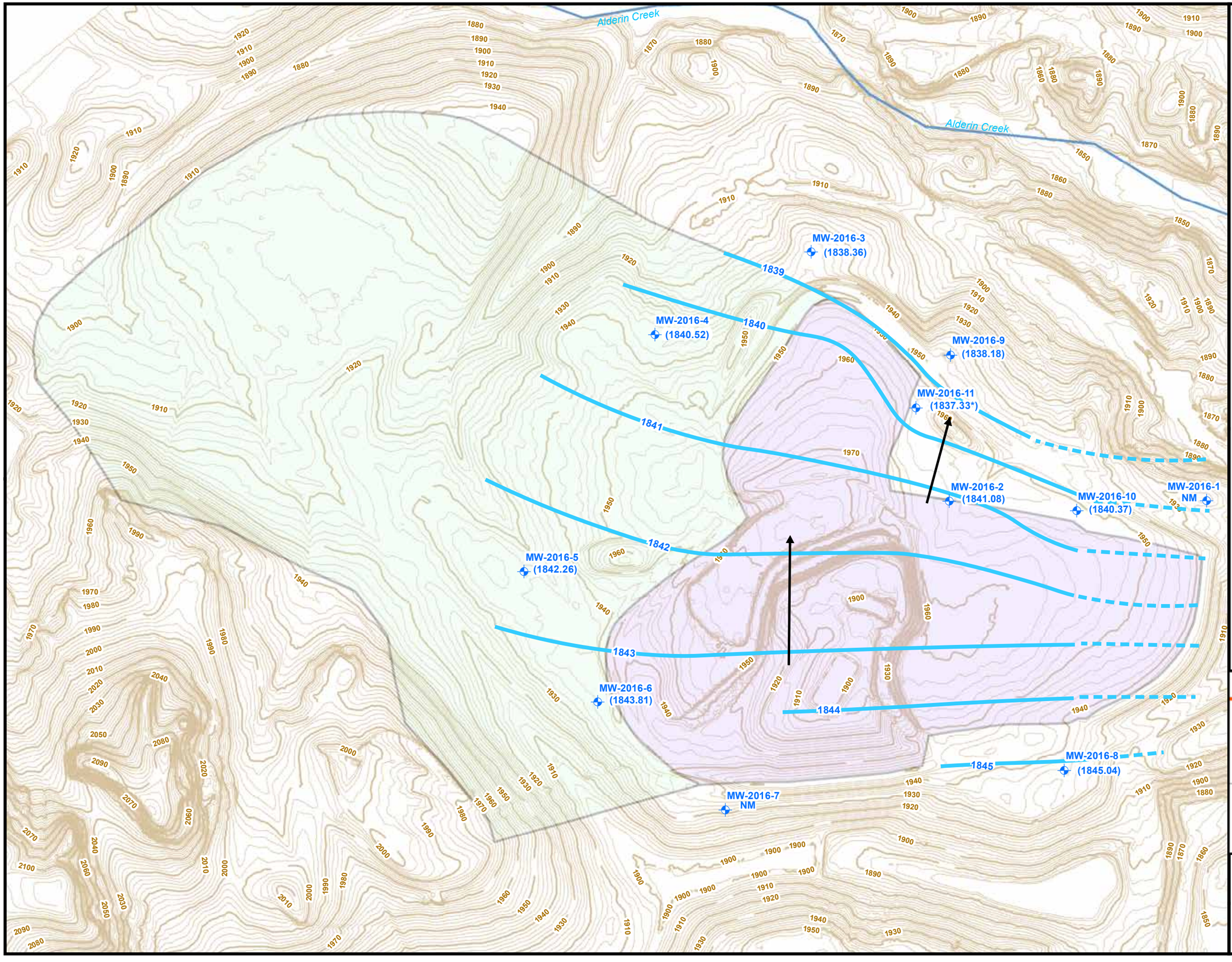
1 inch = 400 feet

0 0.05 0.1 Miles




**BASIN ELECTRIC POWER COOPERATIVE**
**FIGURE 1**
**LOS CCR MONITORING WELL NETWORK and POTENTIOMETRIC SURFACE MAP**
**May 17, 2021**

AECOM




**Legend**

- Monitoring Well
- Existing Limits of Waste
- Expansion Limits of Waste
- Surface Contours (2-foot interval)
- Piezometric Surface Contour Dashed where inferred (1-foot interval)

* value not used in countour

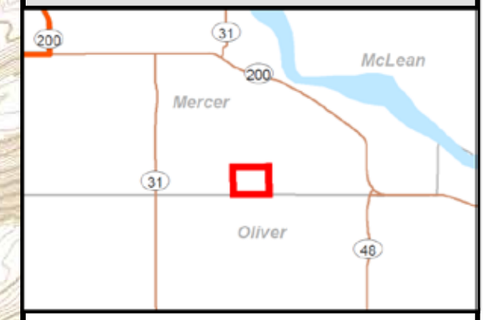
Groundwater Flow Direction

Note:
Groundwater elevations were obtained on September 27-28, 2021

N
W E
S

1 inch = 400 feet

0 0.05 0.1
Miles




**BASIN ELECTRIC POWER COOPERATIVE**
**FIGURE 2**
**LOS CCR MONITORING WELL NETWORK**
**September 27 - 28, 2021**

**JOB NO. 60634994**

AECOM

# Tables

**TABLE 1**

**2021 GROUNDWATER MONITORING WATER LEVELS AND ELEVATIONS**
**CCR PROGRAM MONITORING WELLS**
**LELAND OLDS STATION CCR LANDFILL- STANTON ND**

| Well ID | Reference Elevation Top of Casing (feet, NAVD 88) | May 17-18, 2021 Depth to Water (feet) | May 17-18, 2021 Groundwater Elevation (feet, NAVD 88) | September 27-28,2021 Depth to Water (feet) | September 27-28,2021 Groundwater Elevation (feet, NAVD 88) |
|---|---|---|---|---|---|
| **MW-2016-2** | 1957.98 | 115.85 | 1842.13 | 116.90 | 1841.08 |
| **MW-2016-3** | 1939.88 | 100.82 | 1839.06 | 101.52 | 1838.36 |
| **MW-2016-4** | 1939.97 | 98.59 | 1841.38 | 99.45 | 1840.52 |
| **MW-2016-5** | 1937.54 | 94.32 | 1843.22 | 95.28 | 1842.26 |
| **MW-2016-6** | 1939.31 | 94.71 | 1844.60 | 95.5 | 1843.81 |
| **MW-2016-8** | 1939.361 | 93.47 | 1845.89 | 94.32 | 1845.04 |
| **MW-2016-9** | 1947.392 | 108.29 | 1839.10 | 109.21 | 1838.18 |
| **MW-2016-10** | 1953.315 | 112.45 | 1840.87 | 112.95 | 1840.37 |
| **MW-2016-11** | 1956.73 | 117.43 | 1839.30 | 119.4 | 1837.33 |

Notes:
NAVD 88 = North American Verticle Datum 1988

**TABLE 2**

**ESTIMATED GROUNDWATER GRADIENT AND SEEPAGE VELOCITY**
**CCR PROGRAM MONITORING WELLS**

**LELAND OLDS STATION CCR LANDFILL – STANTON, NORTH DAKOTA**

| Date of event | $d_l$ (ft) | $d_h$ (ft) | i (ft/ft) | $n_e$ | K (ft/day) | $v_s$ (ft/day) |
|---|---|---|---|---|---|---|
| 9/27/2016 | 680 | 4 | 5.88E-03 | 0.185 | 0.0344 | 1.09E-03 |
| 2/13/2017 | 680 | 3 | 4.41E-03 | 0.185 | 0.0344 | 8.20E-04 |
| 3/16/2017 | 600 | 4 | 6.67E-03 | 0.185 | 0.0344 | 1.24E-03 |
| 4/11/2017 | 600 | 3 | 5.00E-03 | 0.185 | 0.0344 | 9.30E-04 |
| 5/17/2017 | 920 | 4 | 4.35E-03 | 0.185 | 0.0344 | 8.08E-04 |
| 6/20/2017 | 880 | 4 | 4.55E-03 | 0.185 | 0.0344 | 8.45E-04 |
| 7/18/2017 | 960 | 6 | 6.25E-03 | 0.185 | 0.0344 | 1.16E-03 |
| 8/21/2017 | 960 | 5 | 5.21E-03 | 0.185 | 0.0344 | 9.68E-04 |
| 4/18/2018 | 800 | 4 | 5.00E-03 | 0.185 | 0.0344 | 9.30E-04 |
| 10/11/2018 | 960 | 3 | 3.13E-03 | 0.185 | 0.0344 | 5.81E-04 |
| 5/20/2019 | 800 | 2 | 2.50E-03 | 0.185 | 0.034 | 4.65E-04 |
| 10/8/2019 | 1080 | 4 | 3.70E-03 | 0.185 | 0.034 | 6.89E-04 |
| 6/9/2020 | 800 | 2 | 2.5E-03 | 0.185 | 0.034 | 4.649E-04 |
| 9/30/2020 | 640 | 2 | 3.13E-03 | 0.185 | 0.034 | 5.811E-04 |
| 5/17/2021 | 740 | 2 | 2.70E-03 | 0.185 | 0.034 | 5.03E-04 |
| 9/27/2021 | 1290 | 2 | 1.55E-03 | 0.185 | 0.034 | 2.88E-04 |

$d_l$ = 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 3.44 E-02 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] – $v_s = -K * i / n_e$

1. In textbook form, $d_h$ is a negative number as hydraulic head is reported as the higher value subtracted from the lower value.
2. Negative operation performed as in textbook form, hydraulic gradient is negative.

**Table 3**

**2021 Analytical Results Summary**
**LOS Landfill CCR Monitoring Well Network**
**Leland Olds Station - Stanton, North Dakota**

| | | | Appendix III Constituents | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Boron mg/L | Calcium mg/L | Chloride mg/L | Fluoride mg/L | pH SU | Sulfate mg/L | Dissolved mg/L |
| Well ID | Event | Date | | | | | | | |
| MW-2016-2 | May 2021 | 5/18/2021 | 0.279 | 7.39 | 10.1 | < 0.500 U | 7.87 | 285 | 1870 |
| MW-2016-3 | May 2021 | 5/18/2021 | 0.271 | 5.01 | 31.2 | < 0.500 U | 7.94 | 34.8 | 1500 |
| MW-2016-4 (Dup) | May 2021 | 5/18/2021 | 0.253 | 5.13 | 13.1 | < 0.500 U | 7.89 | 357 | 1750 |
| MW-2016-4 | May 2021 | 5/18/2021 | 0.253 | 5.13 | 13.1 | < 0.500 U | 7.89 | 377 | 1720 |
| MW-2016-5 | May 2021 | 5/18/2021 | 0.275 | 8.86 | 5.74 | < 0.500 U | 7.84 | 635 | 1890 |
| MW-2016-6 | May 2021 | 5/18/2021 | 0.283 | 8.56 | 4.92 | < 0.500 U | 7.92 | 727 | 2140 |
| MW-2016-8 | May 2021 | 5/17/2021 | 0.294 | 13.3 | 7.03 | 2.19 | 7.82 | 761 | 2300 |
| MW-2016-9 | May 2021 | 5/18/2021 | 0.291 | 7.62 | 13.0 | < 0.500 U | 8.2 | 323 | 1680 |
| MW-2016-10 | May 2021 | 5/17/2021 | 0.252 | 5.46 | 11.6 | < 0.500 U | 7.92 | 318 | 1720 |
| MW-2016-11 | May 2021 | 5/18/2021 | 0.301 | 6.53 | 17.3 | < 0.500 U | 7.83 | 218 | 1710 |
| | | | | | | | | | |
| MW-2016-2 | September 2021 | 9/28/21 | 0.295 B | 7.57 | 13.0 | 0.427 J | 7.69 | 313 | 1810 |
| MW-2016-3 | September 2021 | 9/28/21 | 0.275 B | 4.82 | 36.6 | 0.591 | 8.03 | 38.1 | 1520 |
| MW-2016-4 | September 2021 | 9/28/21 | 0.265 B | 5.22 | 16.3 | 0.594 | 7.9 | 401 | 1690 |
| MW-2016-5 | September 2021 | 9/28/21 | 0.277 B | 6.31 | 6.99 | 0.522 | 7.95 | 820 | 1940 |
| MW-2016-6 | September 2021 | 9/28/21 | 0.302 B | 8.64 | 6.05 | 0.395 J | 8.06 | 910 | 2110 |
| MW-2016-8 | September 2021 | 9/27/21 | 0.29 B | 12.7 | 8.75 | 0.282 J | 7.7 | 738 | 2280 |
| MW-2016-9 | September 2021 | 9/28/21 | 0.311 B | 6.7 | 20.4 | 0.470 J | 8 | 225 | 1740 |
| MW-2016-10 (Dup) | September 2021 | 9/28/21 | 0.627 B | 5.6 | 14.8 | 0.514 | 7.75 | 354 | 1720 |
| MW-2016-10 | September 2021 | 9/28/21 | 0.267 B | 5.62 | 14.7 | 0.506 | 7.75 | 340 | 1700 |
| MW-2016-11 | September 2021 | 9/28/21 | 0.328 B | 7.02 | 23.8 | 0.484 J | 8.01 | 303 | 1700 |

**Notes:**
mg/L = milligrams per liter
S.U. = Standard units
< = less than
J = Estimated concentration below reporting limit
B = Compound found in the blank and sample
U = Non detect

# 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: 280-148834-1
Laboratory Sample Delivery Group: LOS Landfill
Client Project/Site: CCR Groundwater - ND Sites - LOS Landfill

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

Attn: Aaron Knutson

Shelby Turner

*Authorized for release by:*
*6/9/2021 3:40:23 PM*

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

# Table of Contents

# Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Qualifiers

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |

## 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: 280-148834-1

**Laboratory: Eurofins TestAmerica, Denver**

**Narrative**

# CASE NARRATIVE

## Client: Basin Electric Power Cooperative

## Project: CCR Groundwater - ND Sites - LOS Landfill

## Report Number: 280-148834-1

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 5/20/2021 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.4º C and 0.9º C.

**Receipt Exceptions**

1 X 1L unpreserved plastic container submitted for the following sample was received filled with 300mL of sample volume: MW-2016-2 (280-148834-9). Sufficient volume is available for the requested analyses.

**TOTAL RECOVERABLE METALS**

Samples MW-2016-6 (280-148834-1), MW-2016-8 (280-148834-2), MW-2016-3 (280-148834-3), MW-2016-5 (280-148834-4), MW-2016-4 (280-148834-5), MW-2016-9 (280-148834-6), MW-2016-10 (280-148834-7), MW-2016-11 (280-148834-8), MW-2016-2 (280-148834-9) and DUP (280-148834-10) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/04/2021 and analyzed on 06/07/2021.

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

**TOTAL DISSOLVED SOLIDS**

Samples MW-2016-6 (280-148834-1), MW-2016-8 (280-148834-2), MW-2016-3 (280-148834-3), MW-2016-5 (280-148834-4), MW-2016-4 (280-148834-5), MW-2016-9 (280-148834-6), MW-2016-10 (280-148834-7), MW-2016-11 (280-148834-8), MW-2016-2 (280-148834-9) and DUP (280-148834-10) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/21/2021.

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

**ANIONS (28 DAYS)**

Samples MW-2016-6 (280-148834-1), MW-2016-8 (280-148834-2), MW-2016-3 (280-148834-3), MW-2016-5 (280-148834-4), MW-2016-4 (280-148834-5), MW-2016-9 (280-148834-6), MW-2016-10 (280-148834-7), MW-2016-11 (280-148834-8), MW-2016-2 (280-148834-9) and DUP (280-148834-10) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 06/05/2021, 06/07/2021 and 06/08/2021.

Fluoride failed the recovery criteria low for the MS and MSD of sample MW-2016-11 (280-148834-8) in batch 280-538710. The LCS and LCSD are within control limits for this analyte; therefore, the qualified data has been reported. Refer to the QC report for details.

## Job ID: 280-148834-1 (Continued)

### Laboratory: Eurofins TestAmerica, Denver (Continued)

Samples MW-2016-6 (280-148834-1)[5X], MW-2016-8 (280-148834-2)[5X], MW-2016-5 (280-148834-4)[5X], MW-2016-4 (280-148834-5)[5X], MW-2016-9 (280-148834-6)[5X], MW-2016-10 (280-148834-7)[5X], MW-2016-11 (280-148834-8)[10X], MW-2016-2 (280-148834-9)[5X] and DUP (280-148834-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

# Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Client Sample ID: MW-2016-6 — Lab Sample ID: 280-148834-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 283 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 8560 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 4.92 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 727 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 2140 | | 40.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-8 — Lab Sample ID: 280-148834-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 294 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 13300 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 7.03 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 2.19 | | 0.500 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 761 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 2300 | | 40.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-3 — Lab Sample ID: 280-148834-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 271 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5010 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 31.2 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 34.8 | | 5.00 | | mg/L | 1 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1500 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-5 — Lab Sample ID: 280-148834-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 275 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 8860 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 5.74 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 635 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1890 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-4 — Lab Sample ID: 280-148834-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 253 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5130 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 13.1 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 377 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

This Detection Summary does not include radiochemical test results.

# Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Client Sample ID: MW-2016-9 — Lab Sample ID: 280-148834-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 291 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 7620 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 13.0 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 323 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1680 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-10 — Lab Sample ID: 280-148834-7

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 252 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5460 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 11.6 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 318 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-11 — Lab Sample ID: 280-148834-8

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 301 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 6530 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 17.3 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 218 | | 50.0 | | mg/L | 10 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1710 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW-2016-2 — Lab Sample ID: 280-148834-9

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 279 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 7390 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 10.1 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 285 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1870 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: DUP — Lab Sample ID: 280-148834-10

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 253 | | 100 | | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5130 | | 200 | | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 13.1 | | 3.00 | | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 357 | | 25.0 | | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1750 | | 20.0 | | mg/L | 1 | | SM 2540C | Total/NA |

This Detection Summary does not include radiochemical test results.

# Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 6010C | Metals (ICP) | SW846 | TAL DEN |
| 9056A | Anions, Ion Chromatography | SW846 | TAL DEN |
| SM 2540C | Solids, Total Dissolved (TDS) | SM | TAL DEN |
| 3005A | Preparation, Total Recoverable or Dissolved Metals | SW846 | TAL DEN |

**Protocol References:**

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

**Laboratory References:**

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

# Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 280-148834-1 | MW-2016-6 | Water | 05/18/21 10:55 | 05/20/21 09:50 | |
| 280-148834-2 | MW-2016-8 | Water | 05/17/21 09:10 | 05/20/21 09:50 | |
| 280-148834-3 | MW-2016-3 | Water | 05/18/21 09:00 | 05/20/21 09:50 | |
| 280-148834-4 | MW-2016-5 | Water | 05/18/21 08:45 | 05/20/21 09:50 | |
| 280-148834-5 | MW-2016-4 | Water | 05/18/21 08:30 | 05/20/21 09:50 | |
| 280-148834-6 | MW-2016-9 | Water | 05/18/21 10:22 | 05/20/21 09:50 | |
| 280-148834-7 | MW-2016-10 | Water | 05/17/21 13:30 | 05/20/21 09:50 | |
| 280-148834-8 | MW-2016-11 | Water | 05/18/21 10:25 | 05/20/21 09:50 | |
| 280-148834-9 | MW-2016-2 | Water | 05/18/21 10:40 | 05/20/21 09:50 | |
| 280-148834-10 | DUP | Water | 05/18/21 00:00 | 05/20/21 09:50 | |

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

**Client Sample ID: MW-2016-6**
**Date Collected: 05/18/21 10:55**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 283 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:22 | 1 |
| Calcium | 8560 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:22 | 1 |

**Client Sample ID: MW-2016-8**
**Date Collected: 05/17/21 09:10**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 294 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:38 | 1 |
| Calcium | 13300 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:38 | 1 |

**Client Sample ID: MW-2016-3**
**Date Collected: 05/18/21 09:00**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 271 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:42 | 1 |
| Calcium | 5010 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:42 | 1 |

**Client Sample ID: MW-2016-5**
**Date Collected: 05/18/21 08:45**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-4**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 275 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:59 | 1 |
| Calcium | 8860 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:59 | 1 |

**Client Sample ID: MW-2016-4**
**Date Collected: 05/18/21 08:30**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-5**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 253 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:04 | 1 |
| Calcium | 5130 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:04 | 1 |

**Client Sample ID: MW-2016-9**
**Date Collected: 05/18/21 10:22**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-6**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 291 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:08 | 1 |
| Calcium | 7620 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:08 | 1 |

**Client Sample ID: MW-2016-10**
**Date Collected: 05/17/21 13:30**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-7**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 252 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:11 | 1 |
| Calcium | 5460 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:11 | 1 |

**Client Sample ID: MW-2016-11**
**Date Collected: 05/18/21 10:25**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-8**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 301 | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:15 | 1 |
| Calcium | 6530 | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:15 | 1 |

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

**Client Sample ID: MW-2016-2**
**Date Collected: 05/18/21 10:40**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-9**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Boron** | **279** | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:19 | 1 |
| **Calcium** | **7390** | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:19 | 1 |

**Client Sample ID: DUP**
**Date Collected: 05/18/21 00:00**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-10**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Boron** | **253** | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:23 | 1 |
| **Calcium** | **5130** | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 21:23 | 1 |

## General Chemistry

**Client Sample ID: MW-2016-6**
**Date Collected: 05/18/21 10:55**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **4.92** | | 3.00 | | mg/L | | | 06/05/21 17:57 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 17:57 | 1 |
| **Sulfate** | **727** | | 25.0 | | mg/L | | | 06/05/21 18:13 | 5 |
| **Total Dissolved Solids (TDS)** | **2140** | | 40.0 | | mg/L | | | 05/21/21 15:28 | 1 |

**Client Sample ID: MW-2016-8**
**Date Collected: 05/17/21 09:10**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **7.03** | | 3.00 | | mg/L | | | 06/05/21 18:30 | 1 |
| **Fluoride** | **2.19** | | 0.500 | | mg/L | | | 06/05/21 18:30 | 1 |
| **Sulfate** | **761** | | 25.0 | | mg/L | | | 06/05/21 18:46 | 5 |
| **Total Dissolved Solids (TDS)** | **2300** | | 40.0 | | mg/L | | | 05/21/21 15:28 | 1 |

**Client Sample ID: MW-2016-3**
**Date Collected: 05/18/21 09:00**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **31.2** | | 3.00 | | mg/L | | | 06/05/21 19:03 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 19:03 | 1 |
| **Sulfate** | **34.8** | | 5.00 | | mg/L | | | 06/05/21 19:03 | 1 |
| **Total Dissolved Solids (TDS)** | **1500** | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: MW-2016-5**
**Date Collected: 05/18/21 08:45**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-4**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **5.74** | | 3.00 | | mg/L | | | 06/05/21 19:19 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 19:19 | 1 |
| **Sulfate** | **635** | | 25.0 | | mg/L | | | 06/05/21 19:36 | 5 |
| **Total Dissolved Solids (TDS)** | **1890** | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

## General Chemistry

**Client Sample ID: MW-2016-4**
**Date Collected: 05/18/21 08:30**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-5**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 13.1 | | 3.00 | | mg/L | | | 06/05/21 19:52 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 19:52 | 1 |
| Sulfate | 377 | | 25.0 | | mg/L | | | 06/05/21 20:08 | 5 |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: MW-2016-9**
**Date Collected: 05/18/21 10:22**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-6**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 13.0 | | 3.00 | | mg/L | | | 06/05/21 20:58 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 20:58 | 1 |
| Sulfate | 323 | | 25.0 | | mg/L | | | 06/05/21 21:14 | 5 |
| Total Dissolved Solids (TDS) | 1680 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: MW-2016-10**
**Date Collected: 05/17/21 13:30**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-7**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 11.6 | | 3.00 | | mg/L | | | 06/05/21 21:30 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 21:30 | 1 |
| Sulfate | 318 | | 25.0 | | mg/L | | | 06/05/21 21:47 | 5 |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: MW-2016-11**
**Date Collected: 05/18/21 10:25**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-8**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 17.3 | | 3.00 | | mg/L | | | 06/05/21 22:03 | 1 |
| Fluoride | ND | F1 | 0.500 | | mg/L | | | 06/05/21 22:03 | 1 |
| Sulfate | 218 | | 50.0 | | mg/L | | | 06/08/21 16:30 | 10 |
| Total Dissolved Solids (TDS) | 1710 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: MW-2016-2**
**Date Collected: 05/18/21 10:40**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-9**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 10.1 | | 3.00 | | mg/L | | | 06/05/21 23:09 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 23:09 | 1 |
| Sulfate | 285 | | 25.0 | | mg/L | | | 06/07/21 20:23 | 5 |
| Total Dissolved Solids (TDS) | 1870 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

**Client Sample ID: DUP**
**Date Collected: 05/18/21 00:00**
**Date Received: 05/20/21 09:50**

**Lab Sample ID: 280-148834-10**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 13.1 | | 3.00 | | mg/L | | | 06/05/21 23:25 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 23:25 | 1 |
| Sulfate | 357 | | 25.0 | | mg/L | | | 06/07/21 20:38 | 5 |
| Total Dissolved Solids (TDS) | 1750 | | 20.0 | | mg/L | | | 05/21/21 15:29 | 1 |

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 280-538485/1-A**
**Matrix: Water**
**Analysis Batch: 539075**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 538485**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | ND | | 100 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:16 | 1 |
| Calcium | ND | | 200 | | ug/L | | 06/04/21 16:05 | 06/07/21 20:16 | 1 |

**Lab Sample ID: LCS 280-538485/2-A**
**Matrix: Water**
**Analysis Batch: 539075**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 538485**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Boron | 1000 | 1055 | | ug/L | | 105 | 86 - 110 |
| Calcium | 50000 | 51230 | | ug/L | | 102 | 90 - 111 |

**Lab Sample ID: 280-148834-1 MS**
**Matrix: Water**
**Analysis Batch: 539075**

**Client Sample ID: MW-2016-6**
**Prep Type: Total Recoverable**
**Prep Batch: 538485**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 283 | | 1000 | 1312 | | ug/L | | 103 | 87 - 113 |
| Calcium | 8560 | | 50000 | 58210 | | ug/L | | 99 | 48 - 153 |

**Lab Sample ID: 280-148834-1 MSD**
**Matrix: Water**
**Analysis Batch: 539075**

**Client Sample ID: MW-2016-6**
**Prep Type: Total Recoverable**
**Prep Batch: 538485**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 283 | | 1000 | 1355 | | ug/L | | 107 | 87 - 113 | 3 | 20 |
| Calcium | 8560 | | 50000 | 60120 | | ug/L | | 103 | 48 - 153 | 3 | 20 |

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 280-538710/13**
**Matrix: Water**
**Analysis Batch: 538710**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 3.00 | | mg/L | | | 06/05/21 13:58 | 1 |
| Fluoride | ND | | 0.500 | | mg/L | | | 06/05/21 13:58 | 1 |
| Sulfate | ND | | 5.00 | | mg/L | | | 06/05/21 13:58 | 1 |

**Lab Sample ID: LCS 280-538710/11**
**Matrix: Water**
**Analysis Batch: 538710**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 100 | 99.51 | | mg/L | | 100 | 90 - 110 |
| Fluoride | 5.00 | 4.825 | | mg/L | | 96 | 90 - 110 |
| Sulfate | 100 | 97.64 | | mg/L | | 98 | 90 - 110 |

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

**Lab Sample ID: LCSD 280-538710/12**
**Matrix: Water**
**Analysis Batch: 538710**

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

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 100 | 99.41 | | mg/L | | 99 | 90 - 110 | 0 | 10 |
| Fluoride | | | 5.00 | 4.918 | | mg/L | | 98 | 90 - 110 | 2 | 10 |
| Sulfate | | | 100 | 97.57 | | mg/L | | 98 | 90 - 110 | 0 | 10 |

**Lab Sample ID: MRL 280-538710/10**
**Matrix: Water**
**Analysis Batch: 538710**

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

| Analyte | | | Spike Added | MRL Result | MRL Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 5.00 | 3.994 | | mg/L | | 80 | 50 - 150 | | |
| Fluoride | | | 0.500 | ND | | mg/L | | 83 | 50 - 150 | | |
| Sulfate | | | 5.00 | 5.235 | | mg/L | | 105 | 50 - 150 | | |

**Lab Sample ID: 280-148834-8 MS**
**Matrix: Water**
**Analysis Batch: 538710**

**Client Sample ID: MW-2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 17.3 | | 50.0 | 68.46 | | mg/L | | 102 | 80 - 120 | | |
| Fluoride | ND | F1 | 5.00 | 3.886 | F1 | mg/L | | 74 | 80 - 120 | | |

**Lab Sample ID: 280-148834-8 MSD**
**Matrix: Water**
**Analysis Batch: 538710**

**Client Sample ID: MW-2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 17.3 | | 50.0 | 68.64 | | mg/L | | 103 | 80 - 120 | 0 | 20 |
| Fluoride | ND | F1 | 5.00 | 3.908 | F1 | mg/L | | 74 | 80 - 120 | 1 | 20 |

**Lab Sample ID: 280-148834-8 DU**
**Matrix: Water**
**Analysis Batch: 538710**

**Client Sample ID: MW-2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 17.3 | | | 17.26 | | mg/L | | | | 0.5 | 15 |
| Fluoride | ND | F1 | | ND | | mg/L | | | | NC | 15 |

**Lab Sample ID: MB 280-538716/13**
**Matrix: Water**
**Analysis Batch: 538716**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 3.00 | | mg/L | | | 06/05/21 16:17 | 1 |
| Sulfate | ND | | 5.00 | | mg/L | | | 06/05/21 16:17 | 1 |

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

**Lab Sample ID: LCS 280-538716/11**
**Matrix: Water**
**Analysis Batch: 538716**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 100 | 99.32 | | mg/L | | 99 | 90 - 110 |
| Sulfate | 100 | 97.30 | | mg/L | | 97 | 90 - 110 |

**Lab Sample ID: LCSD 280-538716/12**
**Matrix: Water**
**Analysis Batch: 538716**

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

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 100 | 99.51 | | mg/L | | 100 | 90 - 110 | 0 | 10 |
| Sulfate | 100 | 97.48 | | mg/L | | 97 | 90 - 110 | 0 | 10 |

**Lab Sample ID: MRL 280-538716/10**
**Matrix: Water**
**Analysis Batch: 538716**

**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 | 4.060 | | mg/L | | 81 | 50 - 150 |
| Fluoride | 0.500 | ND | | mg/L | | 99 | 50 - 150 |
| Sulfate | 5.00 | ND | | mg/L | | 91 | 50 - 150 |

**Lab Sample ID: 280-148834-10 MS**
**Matrix: Water**
**Analysis Batch: 538716**

**Client Sample ID: DUP**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 250 | 246.1 | | mg/L | | 93 | 80 - 120 |
| Sulfate | 357 | | 250 | 627.3 | | mg/L | | 108 | 80 - 120 |

**Lab Sample ID: 280-148834-10 MSD**
**Matrix: Water**
**Analysis Batch: 538716**

**Client Sample ID: DUP**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 250 | 231.8 | | mg/L | | 87 | 80 - 120 | 6 | 20 |
| Sulfate | 357 | | 250 | 607.2 | | mg/L | | 100 | 80 - 120 | 3 | 20 |

**Lab Sample ID: 280-148834-10 DU**
**Matrix: Water**
**Analysis Batch: 538716**

**Client Sample ID: DUP**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | ND | | mg/L | | NC | 15 |
| Sulfate | 357 | | 338.4 | | mg/L | | 5 | 15 |

**Lab Sample ID: MB 280-538970/6**
**Matrix: Water**
**Analysis Batch: 538970**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | ND | | 5.00 | | mg/L | | | 06/08/21 11:18 | 1 |

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: LCS 280-538970/4**
**Matrix: Water**
**Analysis Batch: 538970**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Sulfate | 100 | 97.70 | | mg/L | | 98 | 90 - 110 |

**Lab Sample ID: LCSD 280-538970/5**
**Matrix: Water**
**Analysis Batch: 538970**

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

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 100 | 97.68 | | mg/L | | 98 | 90 - 110 | 0 | 10 |

**Lab Sample ID: MRL 280-538970/3**
**Matrix: Water**
**Analysis Batch: 538970**

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

| Analyte | Spike Added | MRL Result | MRL Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Sulfate | 5.00 | ND | | mg/L | | 78 | 50 - 150 |

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

**Lab Sample ID: MB 280-537035/1**
**Matrix: Water**
**Analysis Batch: 537035**

**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 | | | 05/21/21 15:28 | 1 |

**Lab Sample ID: LCS 280-537035/2**
**Matrix: Water**
**Analysis Batch: 537035**

**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 | 493.0 | | mg/L | | 99 | 88 - 114 |

**Lab Sample ID: 280-148834-1 DU**
**Matrix: Water**
**Analysis Batch: 537035**

**Client Sample ID: MW-2016-6**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (TDS) | 2140 | | 2116 | | mg/L | | 1 | 10 |

**Lab Sample ID: MB 280-537036/1**
**Matrix: Water**
**Analysis Batch: 537036**

**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 | | | 05/21/21 15:29 | 1 |
| Total Dissolved Solids (TDS) | ND | | 10.0 | | mg/L | | | 05/21/21 15:29 | 1 |

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

**Lab Sample ID: LCS 280-537036/2**
**Matrix: Water**
**Analysis Batch: 537036**

**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 | 486.0 | | mg/L | | 97 | 88 - 114 |
| Total Dissolved Solids (TDS) | 501 | 486.0 | | mg/L | | 97 | 88 - 114 |

## Metals

### Prep Batch: 538485

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-1 | MW-2016-6 | Total Recoverable | Water | 3005A | |
| 280-148834-2 | MW-2016-8 | Total Recoverable | Water | 3005A | |
| 280-148834-3 | MW-2016-3 | Total Recoverable | Water | 3005A | |
| 280-148834-4 | MW-2016-5 | Total Recoverable | Water | 3005A | |
| 280-148834-5 | MW-2016-4 | Total Recoverable | Water | 3005A | |
| 280-148834-6 | MW-2016-9 | Total Recoverable | Water | 3005A | |
| 280-148834-7 | MW-2016-10 | Total Recoverable | Water | 3005A | |
| 280-148834-8 | MW-2016-11 | Total Recoverable | Water | 3005A | |
| 280-148834-9 | MW-2016-2 | Total Recoverable | Water | 3005A | |
| 280-148834-10 | DUP | Total Recoverable | Water | 3005A | |
| MB 280-538485/1-A | Method Blank | Total Recoverable | Water | 3005A | |
| LCS 280-538485/2-A | Lab Control Sample | Total Recoverable | Water | 3005A | |
| 280-148834-1 MS | MW-2016-6 | Total Recoverable | Water | 3005A | |
| 280-148834-1 MSD | MW-2016-6 | Total Recoverable | Water | 3005A | |

### Analysis Batch: 539075

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-1 | MW-2016-6 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-2 | MW-2016-8 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-3 | MW-2016-3 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-4 | MW-2016-5 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-5 | MW-2016-4 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-6 | MW-2016-9 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-7 | MW-2016-10 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-8 | MW-2016-11 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-9 | MW-2016-2 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-10 | DUP | Total Recoverable | Water | 6010C | 538485 |
| MB 280-538485/1-A | Method Blank | Total Recoverable | Water | 6010C | 538485 |
| LCS 280-538485/2-A | Lab Control Sample | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-1 MS | MW-2016-6 | Total Recoverable | Water | 6010C | 538485 |
| 280-148834-1 MSD | MW-2016-6 | Total Recoverable | Water | 6010C | 538485 |

## General Chemistry

### Analysis Batch: 537035

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-1 | MW-2016-6 | Total/NA | Water | SM 2540C | |
| 280-148834-2 | MW-2016-8 | Total/NA | Water | SM 2540C | |
| MB 280-537035/1 | Method Blank | Total/NA | Water | SM 2540C | |
| LCS 280-537035/2 | Lab Control Sample | Total/NA | Water | SM 2540C | |
| 280-148834-1 DU | MW-2016-6 | Total/NA | Water | SM 2540C | |

### Analysis Batch: 537036

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-3 | MW-2016-3 | Total/NA | Water | SM 2540C | |
| 280-148834-4 | MW-2016-5 | Total/NA | Water | SM 2540C | |
| 280-148834-5 | MW-2016-4 | Total/NA | Water | SM 2540C | |
| 280-148834-6 | MW-2016-9 | Total/NA | Water | SM 2540C | |
| 280-148834-7 | MW-2016-10 | Total/NA | Water | SM 2540C | |
| 280-148834-8 | MW-2016-11 | Total/NA | Water | SM 2540C | |
| 280-148834-9 | MW-2016-2 | Total/NA | Water | SM 2540C | |

## General Chemistry (Continued)

### Analysis Batch: 537036 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-10 | DUP | Total/NA | Water | SM 2540C | |
| MB 280-537036/1 | Method Blank | Total/NA | Water | SM 2540C | |
| LCS 280-537036/2 | Lab Control Sample | Total/NA | Water | SM 2540C | |

### Analysis Batch: 538710

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-1 | MW-2016-6 | Total/NA | Water | 9056A | |
| 280-148834-1 | MW-2016-6 | Total/NA | Water | 9056A | |
| 280-148834-2 | MW-2016-8 | Total/NA | Water | 9056A | |
| 280-148834-2 | MW-2016-8 | Total/NA | Water | 9056A | |
| 280-148834-3 | MW-2016-3 | Total/NA | Water | 9056A | |
| 280-148834-4 | MW-2016-5 | Total/NA | Water | 9056A | |
| 280-148834-4 | MW-2016-5 | Total/NA | Water | 9056A | |
| 280-148834-5 | MW-2016-4 | Total/NA | Water | 9056A | |
| 280-148834-5 | MW-2016-4 | Total/NA | Water | 9056A | |
| 280-148834-6 | MW-2016-9 | Total/NA | Water | 9056A | |
| 280-148834-6 | MW-2016-9 | Total/NA | Water | 9056A | |
| 280-148834-7 | MW-2016-10 | Total/NA | Water | 9056A | |
| 280-148834-7 | MW-2016-10 | Total/NA | Water | 9056A | |
| 280-148834-8 | MW-2016-11 | Total/NA | Water | 9056A | |
| 280-148834-9 | MW-2016-2 | Total/NA | Water | 9056A | |
| 280-148834-10 | DUP | Total/NA | Water | 9056A | |
| MB 280-538710/13 | Method Blank | Total/NA | Water | 9056A | |
| LCS 280-538710/11 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCSD 280-538710/12 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| MRL 280-538710/10 | Lab Control Sample | Total/NA | Water | 9056A | |
| 280-148834-8 MS | MW-2016-11 | Total/NA | Water | 9056A | |
| 280-148834-8 MSD | MW-2016-11 | Total/NA | Water | 9056A | |
| 280-148834-8 DU | MW-2016-11 | Total/NA | Water | 9056A | |

### Analysis Batch: 538716

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-9 | MW-2016-2 | Total/NA | Water | 9056A | |
| 280-148834-10 | DUP | Total/NA | Water | 9056A | |
| MB 280-538716/13 | Method Blank | Total/NA | Water | 9056A | |
| LCS 280-538716/11 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCSD 280-538716/12 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| MRL 280-538716/10 | Lab Control Sample | Total/NA | Water | 9056A | |
| 280-148834-10 MS | DUP | Total/NA | Water | 9056A | |
| 280-148834-10 MSD | DUP | Total/NA | Water | 9056A | |
| 280-148834-10 DU | DUP | Total/NA | Water | 9056A | |

### Analysis Batch: 538970

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-148834-8 | MW-2016-11 | Total/NA | Water | 9056A | |
| MB 280-538970/6 | Method Blank | Total/NA | Water | 9056A | |
| LCS 280-538970/4 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCSD 280-538970/5 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| MRL 280-538970/3 | Lab Control Sample | Total/NA | Water | 9056A | |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Client Sample ID: MW-2016-6
**Date Collected: 05/18/21 10:55**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-1
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 20:22 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 17:57 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 18:13 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 25 mL | 100 mL | 537035 | 05/21/21 15:28 | LRB | TAL DEN |

## Client Sample ID: MW-2016-8
**Date Collected: 05/17/21 09:10**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-2
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 20:38 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 18:30 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 18:46 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 25 mL | 100 mL | 537035 | 05/21/21 15:28 | LRB | TAL DEN |

## Client Sample ID: MW-2016-3
**Date Collected: 05/18/21 09:00**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-3
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 20:42 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 19:03 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-5
**Date Collected: 05/18/21 08:45**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-4
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 20:59 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 19:19 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 19:36 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-4
**Date Collected: 05/18/21 08:30**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-5
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:04 | LMT | TAL DEN |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Client Sample ID: MW-2016-4
**Date Collected: 05/18/21 08:30**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-5
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 19:52 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 20:08 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-9
**Date Collected: 05/18/21 10:22**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-6
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:08 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 20:58 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 21:14 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-10
**Date Collected: 05/17/21 13:30**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-7
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:11 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 21:30 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538710 | 06/05/21 21:47 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-11
**Date Collected: 05/18/21 10:25**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-8
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:15 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 22:03 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 10 | 5 mL | 5 mL | 538970 | 06/08/21 16:30 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: MW-2016-2
**Date Collected: 05/18/21 10:40**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-9
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:19 | LMT | TAL DEN |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Client Sample ID: MW-2016-2

**Date Collected: 05/18/21 10:40**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-9

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 23:09 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538716 | 06/07/21 20:23 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

## Client Sample ID: DUP

**Date Collected: 05/18/21 00:00**
**Date Received: 05/20/21 09:50**

## Lab Sample ID: 280-148834-10

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 538485 | 06/04/21 16:05 | EC | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 539075 | 06/07/21 21:23 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 5 mL | 5 mL | 538710 | 06/05/21 23:25 | JMB | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 5 mL | 5 mL | 538716 | 06/07/21 20:38 | JMB | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 537036 | 05/21/21 15:29 | LRB | TAL DEN |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites - LOS Landfill

Job ID: 280-148834-1
SDG: LOS Landfill

## Laboratory: Eurofins TestAmerica, Denver

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

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| North Dakota | State | R-034 | 01-08-22 |

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

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information | Sampler: 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: |
| 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 #: Purchase Order Requested | | | |
| Phone: 701-202-5096(Tel) | WO #: | | | |
| Email: ksolie@bepc.com | Project #: 28021258 | | | |
| Project Name: CCR Groundwater - North Dakota Site | SSOW#: | | | |
| Site: LOS LANDFILL | | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 6010C - Total B, Ca, Li (1 of 3), 6020A - Total Tl 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 | 6010C - Total Calcium and Boron | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | D | N | N | D | D | | |
| MW - 2016 - 6 | 5-18-21 | 1055 | G | Water | | | | X | X | | X | | pH - 7.92 |
| MW - 2016 - 8 | 5-17-21 | 0910 | G | Water | | | | | | | | | pH - 7.81 |
| MW - 2016 - 3 | 5-18-21 | 0900 | G | Water | | | | | | | | | pH - 7.94 |
| MW - 2016 - 5 | 5-18-21 | 0845 | G | Water | | | | | | | | | pH - 7.84 |
| MW - 2016 - 4 | 5-18-21 | 0830 | G | Water | | | | | | | | | pH - 7.88 AK 7.89 |
| MW - 2016 - ~~MW~~ AK - 9 | 5-18-21 | 1022 | G | Water | | | | | | | | | pH - ~~7.89~~ AK 8.20 |
| MW - 2016 - 10 | 5-17-21 | 1330 | G | Water | | | | | | | | | pH - 7.92 |
| MW - 2016 - 11 | 5-18-21 | 1025 | G | Water | | | | | | | | | pH - 7.83 |
| MW - 2016 - 2 | 5-18-21 | 1040 | G | Water | | | | | | | | | pH - 7.87 |
| DUP - ~~2016~~ | 5-18-21 | | G | Water | | | | X | X | | X | | |
| | | | | Water | | | | | | | | | |

280-148834 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: | Date/Time: 5-19-21 | Company: BEPC | Received by: | Date/Time: 5/20/21 0950 | Company: ETA DEN |
| 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.: 543671

Cooler Temperature(s) °C and Other Remarks: 0.5, 0.0 CF +0.4 IR 11

Ver: 01/16/2019

FedEx Express **Package US Airbill**

FedEx Tracking Number 8124 0868 5746

Form ID No. 0200

Eurofins 0.0, 0.5

1543671

**1 From**

Date

Sender's Name — Phone

Company

Address — Dept./Floor/Suite/Room

City — State — ZIP

**2 Your Internal Billing Reference**

**3 To**

Recipient's Name — Phone

Company

Address — Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City — State — ZIP

Hold Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Hold Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

280-148834 Waybill

8124 0868 5746

**4 Express Package Serv**

*Packages up to 150 lbs.* *For packages over 150 lbs., use the FedEx Express Freight US Airbill.*

**Next Business Day**

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

**2 or 3 Business Days**

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

**5 Packaging** * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

**6 Special Handling and Delivery Signature Options** Fees may apply. See the FedEx Service Guide.

- [ ] Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

**Does this shipment contain dangerous goods?**

One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

- [ ] Cargo Aircraft Only

**7 Payment** *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

Obtain rate Acct. No. [ ]

- [ ] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages — Total Weight ____ lbs.

Credit Card Auth.

†Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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**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: |
| 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 #: Purchase Order Requested | | | |
| Phone: 701-202-5096(Tel) | WO #: | | | |
| Email: ksolie@bepc.com | Project #: 28021258 | | | |
| Project Name: CCR Groundwater - North Dakota Site | SSOW#: | | | |
| Site: LOS LANDFILL | | | | |

**Analysis Requested**

Field Filtered Sample (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
6010C - Total Calcium and Boron

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | 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 | 6010C - Total Calcium and Boron | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | D | N | N | D | D | |
| MW-2016-6 | 5-18-21 | 1055 | G | Water | | X | X | X | | X | pH - 7.92 |
| MW-2016-8 | 5-17-21 | 0910 | G | Water | | | | | | | pH - 7.81 |
| MW-2016-3 | 5-18-21 | 0900 | G | Water | | | | | | | pH - 7.94 |
| MW-2016-5 | 5-18-21 | 0845 | G | Water | | | | | | | pH - 7.84 |
| MW-2016-4 | 5-18-21 | 0830 | G | Water | | | | | | | pH - 7.89 AK |
| MW-2016-~~103~~ AK -9 | 5-18-21 | 1022 | G | Water | | | | | | | pH - ~~7.89~~ AK 8.20 |
| MW-2016-10 | 5-17-21 | 1330 | G | Water | | | | | | | pH - 7.92 |
| MW-2016-11 | 5-18-21 | 1025 | G | Water | | | | | | | pH - 7.83 |
| MW-2016-2 | 5-18-21 | 1040 | G | Water | | | | | | | pH - 7.87 |
| DUP - ~~2016~~ | 5-18-21 | | G | Water | | X | X | X | | X | |
| | | | | Water | | | | | | | |

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

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

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

Special Instructions/QC Requirements:

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

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| | | 5-19-21 | BEPC | | | |
| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

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

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

6/9/2021

# Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-148834-1
SDG Number: LOS Landfill

**Login Number: 148834**
**List Number: 1**
**Creator: O'Hara, Jake F**

**List Source: Eurofins TestAmerica, Denver**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | 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. | False | Refer to job narrative for details. |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | 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: 280-153579-1
Laboratory Sample Delivery Group: LOS Landfill
Client Project/Site: CCR Groundwater - ND Sites- LOS Landfill

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

Attn: Aaron Knutson

Shelby Turner

*Authorized for release by:*
*10/14/2021 9:00:26 AM*

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

# Table of Contents

# Definitions/Glossary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Qualifiers

### Metals

| Qualifier | Qualifier Description |
|---|---|
| B | Compound was found in the blank and sample. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| 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: 280-153579-1

**Laboratory: Eurofins TestAmerica, Denver**

**Narrative**

# CASE NARRATIVE

## Client: Basin Electric Power Cooperative

## Project: CCR Groundwater - ND Sites- LOS Landfill

## Report Number: 280-153579-1

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 9/30/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4º C.

**Receipt Exceptions**

1 x 1 liter unpreserved poly container for the following sample was received filled with 250mL of volume: MW 2016-2 (280-153579-7). Sufficient volume is available for the requested analysis.

1 x 1 liter unpreserved poly container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW 2016-3 (280-153579-3). The container label lists collection date "09/29", while the COC lists "09/28". The sample was logged per the collection date listed on the COC.

1 x 500mL Nitric Acid preserved poly container received for the following sample does not have a Nitric Acid preservative sticker on it: MW 2016-2 (280-153579-7). Preservation was checked at receipt and the bottle has a pH of 3.

**TOTAL RECOVERABLE METALS**

Samples MW 2016-6 (280-153579-1), MW 2016-8 (280-153579-2), MW 2016-3 (280-153579-3), MW 2016-5 (280-153579-4), MW 2016-4 (280-153579-5), MW 2016-10 (280-153579-6), MW 2016-2 (280-153579-7), MW 2016-9 (280-153579-8), MW 2016-11 (280-153579-9) and DUP (280-153579-10) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/03/2021 and analyzed on 10/04/2021 and 10/05/2021.

Boron was detected in method blank MB 280-551864/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Result detect in MB is less than 1/2 the RL. Refer to the QC report for details.

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

**TOTAL DISSOLVED SOLIDS**

Samples MW 2016-6 (280-153579-1), MW 2016-8 (280-153579-2), MW 2016-3 (280-153579-3), MW 2016-5 (280-153579-4), MW 2016-4 (280-153579-5), MW 2016-10 (280-153579-6), MW 2016-2 (280-153579-7), MW 2016-9 (280-153579-8), MW 2016-11 (280-153579-9) and DUP (280-153579-10) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 10/03/2021.

## Job ID: 280-153579-1 (Continued)

### Laboratory: Eurofins TestAmerica, Denver (Continued)

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

**ANIONS (28 DAYS)**

Samples MW 2016-6 (280-153579-1), MW 2016-8 (280-153579-2), MW 2016-3 (280-153579-3), MW 2016-5 (280-153579-4), MW 2016-4 (280-153579-5), MW 2016-10 (280-153579-6), MW 2016-2 (280-153579-7), MW 2016-9 (280-153579-8), MW 2016-11 (280-153579-9) and DUP (280-153579-10) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 10/05/2021, 10/06/2021, 10/11/2021 and 10/12/2021.

Samples MW 2016-6 (280-153579-1)[5X], MW 2016-8 (280-153579-2)[10X], MW 2016-5 (280-153579-4)[5X], MW 2016-4 (280-153579-5)[5X], MW 2016-10 (280-153579-6)[5X], MW 2016-2 (280-153579-7)[5X], MW 2016-9 (280-153579-8)[5X], MW 2016-11 (280-153579-9)[5X] and DUP (280-153579-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

# Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: MW 2016-6 — Lab Sample ID: 280-153579-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 302 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 8640 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 6.05 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.395 | J | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 910 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 2110 | | 40.0 | 18.8 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-8 — Lab Sample ID: 280-153579-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 290 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 12700 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 8.75 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.282 | J | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 738 | | 50.0 | 10.3 | mg/L | 10 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 2280 | | 40.0 | 18.8 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-3 — Lab Sample ID: 280-153579-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 275 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 4820 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 36.6 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.591 | | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 38.1 | | 5.00 | 1.03 | mg/L | 1 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1520 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-5 — Lab Sample ID: 280-153579-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 277 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 6310 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 6.99 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.522 | | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 820 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1940 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-4 — Lab Sample ID: 280-153579-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 265 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5220 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 16.3 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.594 | | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 401 | | 25.0 | 5.15 | 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
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: MW 2016-4 (Continued) — Lab Sample ID: 280-153579-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (TDS) | 1690 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-10 — Lab Sample ID: 280-153579-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 267 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 5620 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 14.7 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.506 | | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 340 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1700 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-2 — Lab Sample ID: 280-153579-7

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 295 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 7570 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 13.0 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.427 | J | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 313 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1810 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-9 — Lab Sample ID: 280-153579-8

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 311 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 6700 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 20.4 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.470 | J | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 225 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1740 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: MW 2016-11 — Lab Sample ID: 280-153579-9

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 328 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |
| Calcium | 7020 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 23.8 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.484 | J | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 303 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1700 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

## Client Sample ID: DUP — Lab Sample ID: 280-153579-10

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 267 | B | 100 | 4.37 | ug/L | 1 | | 6010C | Total Recoverable |

This Detection Summary does not include radiochemical test results.

# Detection Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: DUP (Continued)

## Lab Sample ID: 280-153579-10

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Calcium | 5600 | | 200 | 77.8 | ug/L | 1 | | 6010C | Total Recoverable |
| Chloride | 14.8 | | 3.00 | 1.02 | mg/L | 1 | | 9056A | Total/NA |
| Fluoride | 0.514 | | 0.500 | 0.165 | mg/L | 1 | | 9056A | Total/NA |
| Sulfate | 354 | | 25.0 | 5.15 | mg/L | 5 | | 9056A | Total/NA |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | 9.40 | mg/L | 1 | | SM 2540C | Total/NA |

This Detection Summary does not include radiochemical test results.

# Method Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 6010C | Metals (ICP) | SW846 | TAL DEN |
| 9056A | Anions, Ion Chromatography | SW846 | TAL DEN |
| SM 2540C | Solids, Total Dissolved (TDS) | SM | TAL DEN |
| 3005A | Preparation, Total Recoverable or Dissolved Metals | SW846 | TAL DEN |

**Protocol References:**

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

**Laboratory References:**

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

# Sample Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 280-153579-1 | MW 2016-6 | Water | 09/28/21 08:00 | 09/30/21 10:15 |
| 280-153579-2 | MW 2016-8 | Water | 09/27/21 09:45 | 09/30/21 10:15 |
| 280-153579-3 | MW 2016-3 | Water | 09/28/21 08:30 | 09/30/21 10:15 |
| 280-153579-4 | MW 2016-5 | Water | 09/28/21 09:05 | 09/30/21 10:15 |
| 280-153579-5 | MW 2016-4 | Water | 09/27/21 14:35 | 09/30/21 10:15 |
| 280-153579-6 | MW 2016-10 | Water | 09/28/21 10:30 | 09/30/21 10:15 |
| 280-153579-7 | MW 2016-2 | Water | 09/28/21 10:45 | 09/30/21 10:15 |
| 280-153579-8 | MW 2016-9 | Water | 09/28/21 12:55 | 09/30/21 10:15 |
| 280-153579-9 | MW 2016-11 | Water | 09/28/21 13:20 | 09/30/21 10:15 |
| 280-153579-10 | DUP | Water | 09/28/21 00:00 | 09/30/21 10:15 |

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

**Client Sample ID: MW 2016-6**
**Date Collected: 09/28/21 08:00**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 302 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:07 | 1 |
| Calcium | 8640 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:07 | 1 |

**Client Sample ID: MW 2016-8**
**Date Collected: 09/27/21 09:45**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 290 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:24 | 1 |
| Calcium | 12700 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:24 | 1 |

**Client Sample ID: MW 2016-3**
**Date Collected: 09/28/21 08:30**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 275 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:27 | 1 |
| Calcium | 4820 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:27 | 1 |

**Client Sample ID: MW 2016-5**
**Date Collected: 09/28/21 09:05**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-4**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 277 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:44 | 1 |
| Calcium | 6310 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:44 | 1 |

**Client Sample ID: MW 2016-4**
**Date Collected: 09/27/21 14:35**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-5**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 265 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:48 | 1 |
| Calcium | 5220 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:48 | 1 |

**Client Sample ID: MW 2016-10**
**Date Collected: 09/28/21 10:30**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-6**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 267 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:51 | 1 |
| Calcium | 5620 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:51 | 1 |

**Client Sample ID: MW 2016-2**
**Date Collected: 09/28/21 10:45**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-7**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 295 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:54 | 1 |
| Calcium | 7570 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:54 | 1 |

**Client Sample ID: MW 2016-9**
**Date Collected: 09/28/21 12:55**
**Date Received: 09/30/21 10:15**
**Lab Sample ID: 280-153579-8**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 311 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:58 | 1 |
| Calcium | 6700 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:58 | 1 |

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

**Client Sample ID: MW 2016-11**
**Date Collected: 09/28/21 13:20**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-9**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 328 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/05/21 00:01 | 1 |
| Calcium | 7020 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/05/21 00:01 | 1 |

**Client Sample ID: DUP**
**Date Collected: 09/28/21 00:00**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-10**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 267 | B | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/05/21 00:05 | 1 |
| Calcium | 5600 | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/05/21 00:05 | 1 |

## General Chemistry

**Client Sample ID: MW 2016-6**
**Date Collected: 09/28/21 08:00**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 6.05 | | 3.00 | 1.02 | mg/L | | | 10/05/21 18:32 | 1 |
| Fluoride | 0.395 | J | 0.500 | 0.165 | mg/L | | | 10/05/21 18:32 | 1 |
| Sulfate | 910 | | 25.0 | 5.15 | mg/L | | | 10/05/21 18:46 | 5 |
| Total Dissolved Solids (TDS) | 2110 | | 40.0 | 18.8 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-8**
**Date Collected: 09/27/21 09:45**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 8.75 | | 3.00 | 1.02 | mg/L | | | 10/05/21 19:00 | 1 |
| Fluoride | 0.282 | J | 0.500 | 0.165 | mg/L | | | 10/05/21 19:00 | 1 |
| Sulfate | 738 | | 50.0 | 10.3 | mg/L | | | 10/11/21 23:56 | 10 |
| Total Dissolved Solids (TDS) | 2280 | | 40.0 | 18.8 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-3**
**Date Collected: 09/28/21 08:30**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 36.6 | | 3.00 | 1.02 | mg/L | | | 10/05/21 19:29 | 1 |
| Fluoride | 0.591 | | 0.500 | 0.165 | mg/L | | | 10/05/21 19:29 | 1 |
| Sulfate | 38.1 | | 5.00 | 1.03 | mg/L | | | 10/05/21 19:29 | 1 |
| Total Dissolved Solids (TDS) | 1520 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-5**
**Date Collected: 09/28/21 09:05**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-4**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 6.99 | | 3.00 | 1.02 | mg/L | | | 10/05/21 19:57 | 1 |
| Fluoride | 0.522 | | 0.500 | 0.165 | mg/L | | | 10/05/21 19:57 | 1 |
| Sulfate | 820 | | 25.0 | 5.15 | mg/L | | | 10/05/21 20:11 | 5 |
| Total Dissolved Solids (TDS) | 1940 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

## General Chemistry

**Client Sample ID: MW 2016-4**
**Date Collected: 09/27/21 14:35**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-5**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 16.3 | | 3.00 | 1.02 | mg/L | | | 10/05/21 20:25 | 1 |
| Fluoride | 0.594 | | 0.500 | 0.165 | mg/L | | | 10/05/21 20:25 | 1 |
| Sulfate | 401 | | 25.0 | 5.15 | mg/L | | | 10/12/21 00:25 | 5 |
| Total Dissolved Solids (TDS) | 1690 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-10**
**Date Collected: 09/28/21 10:30**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-6**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14.7 | | 3.00 | 1.02 | mg/L | | | 10/05/21 22:03 | 1 |
| Fluoride | 0.506 | | 0.500 | 0.165 | mg/L | | | 10/05/21 22:03 | 1 |
| Sulfate | 340 | | 25.0 | 5.15 | mg/L | | | 10/05/21 22:17 | 5 |
| Total Dissolved Solids (TDS) | 1700 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-2**
**Date Collected: 09/28/21 10:45**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-7**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 13.0 | | 3.00 | 1.02 | mg/L | | | 10/05/21 22:31 | 1 |
| Fluoride | 0.427 | J | 0.500 | 0.165 | mg/L | | | 10/05/21 22:31 | 1 |
| Sulfate | 313 | | 25.0 | 5.15 | mg/L | | | 10/05/21 22:45 | 5 |
| Total Dissolved Solids (TDS) | 1810 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-9**
**Date Collected: 09/28/21 12:55**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-8**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 20.4 | | 3.00 | 1.02 | mg/L | | | 10/05/21 22:59 | 1 |
| Fluoride | 0.470 | J | 0.500 | 0.165 | mg/L | | | 10/05/21 22:59 | 1 |
| Sulfate | 225 | | 25.0 | 5.15 | mg/L | | | 10/05/21 23:13 | 5 |
| Total Dissolved Solids (TDS) | 1740 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: MW 2016-11**
**Date Collected: 09/28/21 13:20**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-9**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 23.8 | | 3.00 | 1.02 | mg/L | | | 10/05/21 23:55 | 1 |
| Fluoride | 0.484 | J | 0.500 | 0.165 | mg/L | | | 10/05/21 23:55 | 1 |
| Sulfate | 303 | | 25.0 | 5.15 | mg/L | | | 10/06/21 00:51 | 5 |
| Total Dissolved Solids (TDS) | 1700 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

**Client Sample ID: DUP**
**Date Collected: 09/28/21 00:00**
**Date Received: 09/30/21 10:15**

**Lab Sample ID: 280-153579-10**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14.8 | | 3.00 | 1.02 | mg/L | | | 10/06/21 01:47 | 1 |
| Fluoride | 0.514 | | 0.500 | 0.165 | mg/L | | | 10/06/21 01:47 | 1 |
| Sulfate | 354 | | 25.0 | 5.15 | mg/L | | | 10/06/21 02:01 | 5 |
| Total Dissolved Solids (TDS) | 1720 | | 20.0 | 9.40 | mg/L | | | 10/03/21 11:08 | 1 |

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 280-551864/1-A**
**Matrix: Water**
**Analysis Batch: 552311**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 551864**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 8.856 | J | 100 | 4.37 | ug/L | | 10/03/21 07:25 | 10/04/21 23:00 | 1 |
| Calcium | ND | | 200 | 77.8 | ug/L | | 10/03/21 07:25 | 10/04/21 23:00 | 1 |

**Lab Sample ID: LCS 280-551864/2-A**
**Matrix: Water**
**Analysis Batch: 552311**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 551864**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Boron | 1000 | 1069 | | ug/L | | 107 | 86 - 110 |
| Calcium | 50000 | 53740 | | ug/L | | 107 | 90 - 111 |

**Lab Sample ID: 280-153579-1 MS**
**Matrix: Water**
**Analysis Batch: 552311**

**Client Sample ID: MW 2016-6**
**Prep Type: Total Recoverable**
**Prep Batch: 551864**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Boron | 302 | B | 1000 | 1403 | | ug/L | | 110 | 87 - 113 |
| Calcium | 8640 | | 50000 | 62430 | | ug/L | | 108 | 48 - 153 |

**Lab Sample ID: 280-153579-1 MSD**
**Matrix: Water**
**Analysis Batch: 552311**

**Client Sample ID: MW 2016-6**
**Prep Type: Total Recoverable**
**Prep Batch: 551864**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 302 | B | 1000 | 1393 | | ug/L | | 109 | 87 - 113 | 1 | 20 |
| Calcium | 8640 | | 50000 | 61750 | | ug/L | | 106 | 48 - 153 | 1 | 20 |

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 280-552193/46**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 3.00 | 1.02 | mg/L | | | 10/05/21 21:49 | 1 |
| Fluoride | ND | | 0.500 | 0.165 | mg/L | | | 10/05/21 21:49 | 1 |
| Sulfate | ND | | 5.00 | 1.03 | mg/L | | | 10/05/21 21:49 | 1 |

**Lab Sample ID: MB 280-552193/6**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | | 3.00 | 1.02 | mg/L | | | 10/04/21 16:13 | 1 |
| Fluoride | ND | | 0.500 | 0.165 | mg/L | | | 10/04/21 16:13 | 1 |
| Sulfate | ND | | 5.00 | 1.03 | mg/L | | | 10/04/21 16:13 | 1 |

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

**Lab Sample ID: LCS 280-552193/4**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 100 | 96.33 | | mg/L | | 96 | 90 - 110 |
| Fluoride | 5.00 | 5.208 | | mg/L | | 104 | 90 - 110 |
| Sulfate | 100 | 96.70 | | mg/L | | 97 | 90 - 110 |

**Lab Sample ID: LCS 280-552193/44**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 100 | 97.45 | | mg/L | | 97 | 90 - 110 |
| Fluoride | 5.00 | 5.019 | | mg/L | | 100 | 90 - 110 |
| Sulfate | 100 | 97.72 | | mg/L | | 98 | 90 - 110 |

**Lab Sample ID: LCSD 280-552193/45**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 100 | 97.37 | | mg/L | | 97 | 90 - 110 | 0 | 10 |
| Fluoride | 5.00 | 5.142 | | mg/L | | 103 | 90 - 110 | 2 | 10 |
| Sulfate | 100 | 97.54 | | mg/L | | 98 | 90 - 110 | 0 | 10 |

**Lab Sample ID: LCSD 280-552193/5**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 100 | 96.43 | | mg/L | | 96 | 90 - 110 | 0 | 10 |
| Fluoride | 5.00 | 5.283 | | mg/L | | 106 | 90 - 110 | 1 | 10 |
| Sulfate | 100 | 97.00 | | mg/L | | 97 | 90 - 110 | 0 | 10 |

**Lab Sample ID: MRL 280-552193/3**
**Matrix: Water**
**Analysis Batch: 552193**

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

| Analyte | Spike Added | MRL Result | MRL Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 5.00 | 5.041 | | mg/L | | 101 | 50 - 150 |
| Fluoride | 0.500 | 0.5541 | | mg/L | | 111 | 50 - 150 |
| Sulfate | 5.00 | 4.879 | J | mg/L | | 98 | 50 - 150 |

**Lab Sample ID: 280-153579-9 MS**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 23.8 | | 50.0 | 75.80 | | mg/L | | 104 | 80 - 120 |
| Fluoride | 0.484 | J | 5.00 | 5.104 | | mg/L | | 92 | 80 - 120 |

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

**Lab Sample ID: 280-153579-9 MS**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 303 | | 250 | 543.5 | | mg/L | | 96 | 80 - 120 | | |

**Lab Sample ID: 280-153579-9 MSD**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 23.8 | | 50.0 | 76.88 | | mg/L | | 106 | 80 - 120 | 1 | 20 |
| Fluoride | 0.484 | J | 5.00 | 5.219 | | mg/L | | 95 | 80 - 120 | 2 | 20 |

**Lab Sample ID: 280-153579-9 MSD**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 303 | | 250 | 538.2 | | mg/L | | 94 | 80 - 120 | 1 | 20 |

**Lab Sample ID: 280-153579-9 DU**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 23.8 | | | 23.50 | | mg/L | | | | 1 | 15 |
| Fluoride | 0.484 | J | | 0.4669 | J | mg/L | | | | 4 | 15 |

**Lab Sample ID: 280-153579-9 DU**
**Matrix: Water**
**Analysis Batch: 552193**

**Client Sample ID: MW 2016-11**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 303 | | | 260.0 | | mg/L | | | | 15 | 15 |

**Lab Sample ID: MB 280-553076/6**
**Matrix: Water**
**Analysis Batch: 553076**

**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 | | | 10/11/21 16:42 | 1 |

**Lab Sample ID: LCS 280-553076/4**
**Matrix: Water**
**Analysis Batch: 553076**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | | | 100 | 98.80 | | mg/L | | 99 | 90 - 110 | | |

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

**Lab Sample ID: LCSD 280-553076/5**
**Matrix: Water**
**Analysis Batch: 553076**

**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 | 99.10 | | mg/L | | 99 | 90 - 110 | 0 | 10 |

**Lab Sample ID: MRL 280-553076/3**
**Matrix: Water**
**Analysis Batch: 553076**

**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 | 5.132 | | mg/L | | 103 | 50 - 150 | | |

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

**Lab Sample ID: MB 280-552080/1**
**Matrix: Water**
**Analysis Batch: 552080**

**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 | | | 10/03/21 11:08 | 1 |

**Lab Sample ID: LCS 280-552080/2**
**Matrix: Water**
**Analysis Batch: 552080**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (TDS) | | | 503 | 491.0 | | mg/L | | 98 | 88 - 114 | | |

## Metals

### Prep Batch: 551864

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-153579-1 | MW 2016-6 | Total Recoverable | Water | 3005A | |
| 280-153579-2 | MW 2016-8 | Total Recoverable | Water | 3005A | |
| 280-153579-3 | MW 2016-3 | Total Recoverable | Water | 3005A | |
| 280-153579-4 | MW 2016-5 | Total Recoverable | Water | 3005A | |
| 280-153579-5 | MW 2016-4 | Total Recoverable | Water | 3005A | |
| 280-153579-6 | MW 2016-10 | Total Recoverable | Water | 3005A | |
| 280-153579-7 | MW 2016-2 | Total Recoverable | Water | 3005A | |
| 280-153579-8 | MW 2016-9 | Total Recoverable | Water | 3005A | |
| 280-153579-9 | MW 2016-11 | Total Recoverable | Water | 3005A | |
| 280-153579-10 | DUP | Total Recoverable | Water | 3005A | |
| MB 280-551864/1-A | Method Blank | Total Recoverable | Water | 3005A | |
| LCS 280-551864/2-A | Lab Control Sample | Total Recoverable | Water | 3005A | |
| 280-153579-1 MS | MW 2016-6 | Total Recoverable | Water | 3005A | |
| 280-153579-1 MSD | MW 2016-6 | Total Recoverable | Water | 3005A | |

### Analysis Batch: 552311

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-153579-1 | MW 2016-6 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-2 | MW 2016-8 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-3 | MW 2016-3 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-4 | MW 2016-5 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-5 | MW 2016-4 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-6 | MW 2016-10 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-7 | MW 2016-2 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-8 | MW 2016-9 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-9 | MW 2016-11 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-10 | DUP | Total Recoverable | Water | 6010C | 551864 |
| MB 280-551864/1-A | Method Blank | Total Recoverable | Water | 6010C | 551864 |
| LCS 280-551864/2-A | Lab Control Sample | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-1 MS | MW 2016-6 | Total Recoverable | Water | 6010C | 551864 |
| 280-153579-1 MSD | MW 2016-6 | Total Recoverable | Water | 6010C | 551864 |

## General Chemistry

### Analysis Batch: 552080

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-153579-1 | MW 2016-6 | Total/NA | Water | SM 2540C | |
| 280-153579-2 | MW 2016-8 | Total/NA | Water | SM 2540C | |
| 280-153579-3 | MW 2016-3 | Total/NA | Water | SM 2540C | |
| 280-153579-4 | MW 2016-5 | Total/NA | Water | SM 2540C | |
| 280-153579-5 | MW 2016-4 | Total/NA | Water | SM 2540C | |
| 280-153579-6 | MW 2016-10 | Total/NA | Water | SM 2540C | |
| 280-153579-7 | MW 2016-2 | Total/NA | Water | SM 2540C | |
| 280-153579-8 | MW 2016-9 | Total/NA | Water | SM 2540C | |
| 280-153579-9 | MW 2016-11 | Total/NA | Water | SM 2540C | |
| 280-153579-10 | DUP | Total/NA | Water | SM 2540C | |
| MB 280-552080/1 | Method Blank | Total/NA | Water | SM 2540C | |
| LCS 280-552080/2 | Lab Control Sample | Total/NA | Water | SM 2540C | |

## General Chemistry

### Analysis Batch: 552193

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-153579-1 | MW 2016-6 | Total/NA | Water | 9056A | |
| 280-153579-1 | MW 2016-6 | Total/NA | Water | 9056A | |
| 280-153579-2 | MW 2016-8 | Total/NA | Water | 9056A | |
| 280-153579-3 | MW 2016-3 | Total/NA | Water | 9056A | |
| 280-153579-4 | MW 2016-5 | Total/NA | Water | 9056A | |
| 280-153579-4 | MW 2016-5 | Total/NA | Water | 9056A | |
| 280-153579-5 | MW 2016-4 | Total/NA | Water | 9056A | |
| 280-153579-6 | MW 2016-10 | Total/NA | Water | 9056A | |
| 280-153579-6 | MW 2016-10 | Total/NA | Water | 9056A | |
| 280-153579-7 | MW 2016-2 | Total/NA | Water | 9056A | |
| 280-153579-7 | MW 2016-2 | Total/NA | Water | 9056A | |
| 280-153579-8 | MW 2016-9 | Total/NA | Water | 9056A | |
| 280-153579-8 | MW 2016-9 | Total/NA | Water | 9056A | |
| 280-153579-9 | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-10 | DUP | Total/NA | Water | 9056A | |
| 280-153579-10 | DUP | Total/NA | Water | 9056A | |
| MB 280-552193/46 | Method Blank | Total/NA | Water | 9056A | |
| MB 280-552193/6 | Method Blank | Total/NA | Water | 9056A | |
| LCS 280-552193/4 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCS 280-552193/44 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCSD 280-552193/45 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| LCSD 280-552193/5 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| MRL 280-552193/3 | Lab Control Sample | Total/NA | Water | 9056A | |
| 280-153579-9 MS | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 MS | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 MSD | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 MSD | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 DU | MW 2016-11 | Total/NA | Water | 9056A | |
| 280-153579-9 DU | MW 2016-11 | Total/NA | Water | 9056A | |

### Analysis Batch: 553076

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-153579-2 | MW 2016-8 | Total/NA | Water | 9056A | |
| 280-153579-5 | MW 2016-4 | Total/NA | Water | 9056A | |
| MB 280-553076/6 | Method Blank | Total/NA | Water | 9056A | |
| LCS 280-553076/4 | Lab Control Sample | Total/NA | Water | 9056A | |
| LCSD 280-553076/5 | Lab Control Sample Dup | Total/NA | Water | 9056A | |
| MRL 280-553076/3 | Lab Control Sample | Total/NA | Water | 9056A | |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: MW 2016-6
**Date Collected: 09/28/21 08:00**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-1
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:07 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 18:32 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/05/21 18:46 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 25 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-8
**Date Collected: 09/27/21 09:45**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-2
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:24 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 19:00 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 10 | 10 mL | 10 mL | 553076 | 10/11/21 23:56 | SPG | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 25 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-3
**Date Collected: 09/28/21 08:30**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-3
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:27 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 19:29 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-5
**Date Collected: 09/28/21 09:05**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-4
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:44 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 19:57 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/05/21 20:11 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-4
**Date Collected: 09/27/21 14:35**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-5
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:48 | LMT | TAL DEN |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: MW 2016-4
**Date Collected: 09/27/21 14:35**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-5
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 20:25 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 553076 | 10/12/21 00:25 | SPG | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-10
**Date Collected: 09/28/21 10:30**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-6
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:51 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 22:03 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/05/21 22:17 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-2
**Date Collected: 09/28/21 10:45**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-7
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:54 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 22:31 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/05/21 22:45 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-9
**Date Collected: 09/28/21 12:55**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-8
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/04/21 23:58 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 22:59 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/05/21 23:13 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: MW 2016-11
**Date Collected: 09/28/21 13:20**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-9
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/05/21 00:01 | LMT | TAL DEN |

# Lab Chronicle

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Client Sample ID: MW 2016-11

**Date Collected: 09/28/21 13:20**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-9

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/05/21 23:55 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/06/21 00:51 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

## Client Sample ID: DUP

**Date Collected: 09/28/21 00:00**
**Date Received: 09/30/21 10:15**

## Lab Sample ID: 280-153579-10

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 551864 | 10/03/21 07:25 | MAB | TAL DEN |
| Total Recoverable | Analysis | 6010C | | 1 | | | 552311 | 10/05/21 00:05 | LMT | TAL DEN |
| Total/NA | Analysis | 9056A | | 1 | 10 mL | 10 mL | 552193 | 10/06/21 01:47 | CJ | TAL DEN |
| Total/NA | Analysis | 9056A | | 5 | 10 mL | 10 mL | 552193 | 10/06/21 02:01 | CJ | TAL DEN |
| Total/NA | Analysis | SM 2540C | | 1 | 50 mL | 100 mL | 552080 | 10/03/21 11:08 | LRB | TAL DEN |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Basin Electric Power Cooperative
Project/Site: CCR Groundwater - ND Sites- LOS Landfill

Job ID: 280-153579-1
SDG: LOS Landfill

## Laboratory: Eurofins TestAmerica, Denver

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

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| North Dakota | State | R-034 | 01-08-22 |

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

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information | Sampler: A. Knutson | Lab PM: Turner, Shelby R | Carrier Tracking No(s): | COC No: |
|---|---|---|---|---|
| Client Contact: Mr. Aaron Knutson | Phone: 701-745-7238 | E-Mail: Shelby.Turner@Eurofinset.com | | Page: 1 of 1 |
| Company: Basin Electric Power Cooperative | | Analysis Requested | | Job #: |
| Address: 3901 Highway 200A | Due Date Requested: | | | Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, M - Hexane, N - None, O - AsNaO2, P - Na2O4S |
| City: Stanton | TAT Requested (days): Standard | | | |
| State, Zip: ND, 58571 | | | | |
| Phone: 701-745-7238(Tel) | PO #: Purchase Order Requested | | | |
| Email: aknutson@bepc.com | WO #: | | | |
| Project Name: CCR Groundwater - North Dakota Sites | Project #: 28021258 | | | |
| Site: B LOS LANDFILL | SSOW#: | | | |

280-153579 Chain of Custody

drate

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 6010C - Total Calcium and Boron (App III) D | 6010C - Total Lithium (1 of 3), 6020A - Total 11 Metals (2 of 3), 7470A - Total Mercury (3 of 3) (Appendix IV) N | 2540C_Calcd - TDS N | 9056A_28D - Chloride, Fluoride, Sulfate N | 9056A_28D - Fluoride only (App IV) N | 9315_Ra226, 9320_Ra228, Combined Radium-226 and Radium-228 D | Total Number | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | | |
| MW 2016-6 | 9-28-21 | 0800 | G | W | | | X | | X | X | | | | pH - 8.06 |
| MW 2016-8 | 9-27-21 | 0945 | G | W | | | X | | X | X | | | | 7.70 |
| MW 2016-3 | 9-28-21 | 0830 | G | W | | | X | | X | X | | | | 8.03 |
| MW 2016-5 | 9-28-21 | 0905 | G | W | | | X | | X | X | | | | 7.95 |
| MW 2016-4 | 9-27-21 | 1435 | G | W | | | X | | X | X | | | | 7.90 |
| MW 2016-10 | 9-28-21 | 1030 | G | W | | | X | | X | X | | | | 7.75 |
| MW 2016-2 | 9-28-21 | 1045 | G | W | | | X | | X | X | | | | only limited volume 7.69 |
| MW 2016-9 | 9-28-21 | 1255 | G | W | | | X | | X | X | | | | 8.00 |
| MW 2016-11 | 9-28-21 | 1320 | G | W | | | X | | X | X | | | | 8.01 |
| DUP | 9-28-21 | | G | W | | | X | | X | X | | | | |

**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: 9-29-21 | Company | Received by: | Date/Time: 09/30/21 1015 | Company |
|---|---|---|---|---|---|
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 4.4 IR11 CF+1.0

Ver: 01/16/2019

280-153579 Waybill

ORIGIN ID:BISA (701) 745-3371
LELAND OLDS STATION
BASIN ELECTRIC
3901 HWY 200A

STANTON, ND 58571
UNITED STATES US

SHIP DATE: 29SEP21
ACTWGT: 62.00 LB
CAD: 251286197/INET4400

BILL SENDER

TO SHELBY TURNER
EUROFINS TESTAMERICA, DENVER
4955 YARROW ST

ARVADA CO 80002
(303) 736-0100

REF: CCR GROUNDWATER - ND SITE
INV:
PO: DEPT:

56DJ3/169A/E4A

FedEx Express

THU - 30 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7748 3078 5346

80002
CO-US DEN

XH LAAA

FedEx Ship Manager - Print Your Label(s)



10/14/2021

# Login Sample Receipt Checklist

Client: Basin Electric Power Cooperative

Job Number: 280-153579-1
SDG Number: LOS Landfill

**Login Number: 153579**
**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. | 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. | False | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Attachment B
# Data Input Files for Calculation of Upper and Lower Prediction Limits

**Attachment B**
**Data Input Files for Calculation of Upper and Lower Prediction Limits**
**Background wells: MW-2016-3, MW-2016-4, MW-2016-5, MW-2016-6, MW-2016-8**
**CCR Landfill, Leland Olds Station, Stanton, ND**

| sys_loc_code | sample_date | sample_type_code | Boron | D_Boron | Calcium | D_Calciun | Chloride | D_Chlorid | Fluoride | D_Fluorid | pH | D_pH | Sulfate | D_Sulfate | TDS | D_TDS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-2016-3 | 9/29/2016 | N | 0.27 | 1 | 23 | 1 | 35 | 1 | 0.5 | 0 | 7.42 | 1 | 100 | 1 | 1400 | 1 |
| MW-2016-3 | 2/16/2017 | N | 0.22 | 1 | 22 | 1 | 37 | 1 | 0.5 | 1 | 7.59 | 1 | 74 | 1 | 1500 | 1 |
| MW-2016-3 | 3/17/2017 | N | 0.26 | 1 | 15 | 1 | 36 | 1 | 0.56 | 1 | 7.83 | 1 | 59 | 1 | 1500 | 1 |
| MW-2016-3 | 4/12/2017 | N | 0.29 | 1 | 12 | 1 | 39 | 1 | 0.57 | 1 | 7.58 | 1 | 59 | 1 | 1500 | 1 |
| MW-2016-3 | 5/19/2017 | N | 0.26 | 1 | 13 | 1 | 33 | 1 | 0.5 | 0 | 7.46 | 1 | 78 | 1 | 1800 | 1 |
| MW-2016-3 | 6/22/2017 | N | 0.25 | 1 | 10 | 1 | | | | | 7.63 | 1 | | | 1500 | 1 |
| MW-2016-3 | 7/20/2017 | N | 0.24 | 1 | 9.7 | 1 | | | | | 7.54 | 1 | | | 1600 | 1 |
| MW-2016-3 | 8/23/2017 | N | 0.25 | 1 | 8.4 | 1 | 37 | 1 | 0.6 | 1 | 7.41 | 1 | 51 | 1 | 1400 | 1 |
| MW-2016-3 | 10/9/2017 | N | | | | | 41 | 1 | 0.54 | 1 | 7.54 | 1 | 47 | 1 | | |
| MW-2016-3 | 10/12/2017 | N | | | | | 40 | 1 | 0.58 | 1 | 7.54 | 1 | 50 | 1 | | |
| MW-2016-3 | 4/19/2018 | N | 0.28 | 1 | 7.3 | 1 | 37 | 1 | 0.64 | 1 | 7.89 | 1 | 34 | 1 | 1500 | 1 |
| MW-2016-3 | 10/11/2018 | N | 0.257 | 1 | 6.53 | 1 | 37.6 | 1 | 0.548 | 1 | 8.24 | 1 | 33.5 | 1 | 1490 | 1 |
| MW-2016-3 | 5/20/2019 | N | 0.244 | 1 | 5.6 | 1 | 37.3 | 1 | 0.314 | 1 | 7.66 | 1 | 47.6 | 1 | 1510 | 1 |
| MW-2016-3 | 10/8/2019 | N | 0.263 | 1 | 5.38 | 1 | 36.7 | 1 | 0.622 | 1 | 8 | 1 | 47.2 | 1 | 1520 | 1 |
| MW-2016-3 | 6/10/2020 | N | 0.246 | 1 | 5.41 | 1 | 29.8 | 1 | 0.512 | 1 | 7.9 | 1 | 31.6 | 1 | 1510 | 1 |
| MW-2016-3 | 10/1/2020 | N | 0.254 | 1 | 5 | 1 | 31.6 | 1 | 0.5 | 0 | 7.92 | 1 | 42.2 | 1 | 1590 | 1 |
| MW-2016-4 | 9/29/2016 | N | 0.24 | 1 | 11 | 1 | 18 | 1 | 0.58 | 1 | 7.49 | 1 | 370 | 1 | 1700 | 1 |
| MW-2016-4 | 2/15/2017 | N | 0.23 | 1 | 9.9 | 1 | 19 | 1 | 0.63 | 1 | 7.61 | 1 | 370 | 1 | 1700 | 1 |
| MW-2016-4 | 3/16/2017 | N | 0.22 | 1 | 10 | 1 | 20 | 1 | 0.58 | 1 | 7.59 | 1 | 360 | 1 | 1700 | 1 |
| MW-2016-4 | 4/12/2017 | N | 0.25 | 1 | 9.5 | 1 | 20 | 1 | 0.6 | 1 | 7.41 | 1 | 370 | 1 | 1700 | 1 |
| MW-2016-4 | 5/19/2017 | N | 0.23 | 1 | 8.5 | 1 | 17 | 1 | 0.54 | 1 | 7.36 | 1 | 350 | 1 | 1700 | 1 |
| MW-2016-4 | 6/21/2017 | N | 0.24 | 1 | 8.1 | 1 | | | | | 7.31 | 1 | | | 1700 | 1 |
| MW-2016-4 | 7/20/2017 | N | 0.22 | 1 | 10 | 1 | | | | | 7.27 | 1 | | | 1700 | 1 |
| MW-2016-4 | 8/23/2017 | N | 0.25 | 1 | 9.7 | 1 | 19 | 1 | 0.58 | 1 | 7.24 | 1 | 360 | 1 | 1600 | 1 |
| MW-2016-4 | 10/9/2017 | N | | | | | 18 | 1 | 0.56 | 1 | 7.61 | 1 | 360 | 1 | | |
| MW-2016-4 | 10/12/2017 | N | | | | | 18 | 1 | 0.57 | 1 | 7.69 | 1 | 320 | 1 | | |
| MW-2016-4 | 4/18/2018 | N | 0.25 | 1 | 7.6 | 1 | 20 | 1 | 0.62 | 1 | 8.14 | 1 | 350 | 1 | 1700 | 1 |
| MW-2016-4 | 10/11/2018 | N | 0.248 | 1 | 6.67 | 1 | 20.9 | 1 | 0.567 | 1 | 8.43 | 1 | 358 | 1 | 1730 | 1 |
| MW-2016-4 | 5/20/2019 | N | 0.237 | 1 | 5.8 | 1 | 20.2 | 1 | 0.31 | 1 | 7.83 | 1 | 377 | 1 | 1770 | 1 |
| MW-2016-4 | 10/8/2019 | N | 0.232 | 1 | 5.36 | 1 | 20.5 | 1 | 0.641 | 1 | 8.22 | 1 | 337 | 1 | 1760 | 1 |
| MW-2016-4 | 6/9/2020 | N | 0.234 | 1 | 5.37 | 1 | 13.2 | 1 | 0.516 | 1 | 8.13 | 1 | 366 | 1 | 1710 | 1 |
| MW-2016-4 | 9/30/2020 | N | 0.246 | 1 | 5.39 | 1 | 30 | 0 | 0.5 | 0 | 8.08 | 1 | 363 | 1 | 1860 | 1 |
| MW-2016-4 | 10/1/2020 | N | 0.246 | 1 | 5.39 | 1 | 30 | 0 | 0.5 | 0 | | | 368 | 1 | 1650 | 1 |
| MW-2016-5 | 9/28/2016 | N | 0.24 | 1 | 23 | 1 | 7.9 | 1 | 0.5 | 0 | 7.93 | 1 | 600 | 1 | 1700 | 1 |
| MW-2016-5 | 2/14/2017 | N | 0.24 | 1 | 18 | 1 | 8.8 | 1 | 0.52 | 1 | 7.51 | 1 | 600 | 1 | 1900 | 1 |
| MW-2016-5 | 3/16/2017 | N | 0.25 | 1 | 13 | 1 | 8.2 | 1 | 0.5 | 0 | 7.53 | 1 | 590 | 1 | 1800 | 1 |
| MW-2016-5 | 4/12/2017 | N | 0.25 | 1 | 12 | 1 | 7.9 | 1 | 0.55 | 1 | 7.32 | 1 | 610 | 1 | 1700 | 1 |
| MW-2016-5 | 5/18/2017 | N | 0.25 | 1 | 11 | 1 | 6.2 | 1 | 0.5 | 0 | 7.22 | 1 | 590 | 1 | 1900 | 1 |
| MW-2016-5 | 6/21/2017 | N | 0.25 | 1 | 9.9 | 1 | | | | | 7.32 | 1 | | | 1900 | 1 |
| MW-2016-5 | 7/19/2017 | N | 0.23 | 1 | 9.8 | 1 | | | | | 7.36 | 1 | | | 1900 | 1 |
| MW-2016-5 | 8/23/2017 | N | 0.24 | 1 | 9.9 | 1 | 7.3 | 1 | 0.56 | 1 | 7.45 | 1 | 630 | 1 | 1700 | 1 |
| MW-2016-5 | 10/9/2017 | N | | | | | 7.2 | 1 | 0.5 | 0 | 7.37 | 1 | 620 | 1 | | |
| MW-2016-5 | 10/12/2017 | N | | | | | 6.5 | 1 | 0.54 | 1 | 7.44 | 1 | 610 | 1 | | |
| MW-2016-5 | 4/19/2018 | N | 0.27 | 1 | 7.8 | 1 | 6.7 | 1 | 0.56 | 1 | 7.79 | 1 | 620 | 1 | 1900 | 1 |
| MW-2016-5 | 10/11/2018 | N | 0.265 | 1 | 9.58 | 1 | 8.4 | 1 | 0.518 | 1 | 8.18 | 1 | 606 | 1 | 1950 | 1 |
| MW-2016-5 | 5/20/2019 | N | 0.246 | 1 | 9.09 | 1 | 8.35 | 1 | 2.5 | 0 | 7.53 | 1 | 607 | 1 | 1890 | 1 |
| MW-2016-5 | 10/8/2019 | N | 0.255 | 1 | 7.35 | 1 | 7.28 | 1 | 0.584 | 1 | 7.69 | 1 | 615 | 1 | 1890 | 1 |
| MW-2016-5 | 6/9/2020 | N | | | | | | | | | 7.01 | 1 | | | | |
| MW-2016-5 | 6/10/2020 | N | 0.237 | 1 | 6.5 | 1 | 5.31 | 1 | 0.451 | 1 | 7.91 | 1 | 623 | 1 | 1890 | 1 |
| MW-2016-5 | 10/1/2020 | N | 0.263 | 1 | 6.8 | 1 | 30 | 0 | 0.5 | 0 | 8.13 | 1 | 588 | 1 | 1860 | 1 |
| MW-2016-6 | 9/28/2016 | N | 0.21 | 1 | 43 | 1 | 9.1 | 1 | 0.5 | 0 | 7.69 | 1 | 520 | 1 | 1500 | 1 |
| MW-2016-6 | 2/15/2017 | N | 0.27 | 1 | 16 | 1 | 6.3 | 1 | 0.5 | 0 | 7.55 | 1 | 730 | 1 | 2100 | 1 |
| MW-2016-6 | 3/16/2017 | N | 0.29 | 1 | 13 | 1 | 15 | 0 | 2.5 | 0 | 7.58 | 1 | 740 | 1 | 2100 | 1 |
| MW-2016-6 | 4/12/2017 | N | 0.29 | 1 | 12 | 1 | 5.8 | 1 | 0.5 | 0 | 7.67 | 1 | 770 | 1 | 2200 | 1 |
| MW-2016-6 | 5/19/2017 | N | 0.27 | 1 | 13 | 1 | 4.7 | 1 | 0.5 | 0 | 7.39 | 1 | 730 | 1 | 2100 | 1 |
| MW-2016-6 | 6/22/2017 | N | 0.27 | 1 | 12 | 1 | | | | | 7.52 | 1 | | | 2100 | 1 |
| MW-2016-6 | 7/20/2017 | N | 0.24 | 1 | 11 | 1 | | | | | 7.53 | 1 | | | 2100 | 1 |
| MW-2016-6 | 8/23/2017 | N | 0.27 | 1 | 11 | 1 | 5.9 | 1 | 0.5 | 0 | 7.49 | 1 | 750 | 1 | 2000 | 1 |
| MW-2016-6 | 10/10/2017 | N | | | | | 5.9 | 1 | 0.5 | 0 | 7.37 | 1 | 710 | 1 | | |
| MW-2016-6 | 10/11/2017 | N | | | | | 5.1 | 1 | 0.5 | 0 | 7.51 | 1 | 720 | 1 | | |
| MW-2016-6 | 4/19/2018 | N | 0.27 | 1 | 9.6 | 1 | 5.6 | 1 | 0.48 | 1 | 8.39 | 1 | 710 | 1 | 2100 | 1 |
| MW-2016-6 | 10/11/2018 | N | 0.287 | 1 | 9.78 | 1 | 6.03 | 1 | 0.401 | 1 | 7.95 | 1 | 716 | 1 | 1890 | 1 |
| MW-2016-6 | 5/20/2019 | N | 0.27 | 1 | 8.49 | 1 | 6.77 | 1 | 2.5 | 0 | 7.46 | 1 | 734 | 1 | 2030 | 1 |
| MW-2016-6 | 10/8/2019 | N | 0.266 | 1 | 7.93 | 1 | 6.38 | 1 | 0.428 | 1 | 7.87 | 1 | 688 | 1 | 2040 | 1 |
| MW-2016-6 | 6/9/2020 | N | | | | | | | | | 8.05 | 1 | | | | |
| MW-2016-6 | 6/10/2020 | N | 0.265 | 1 | 8.35 | 1 | 4.85 | 1 | 0.325 | 1 | 7.93 | 1 | 667 | 1 | 2040 | 1 |
| MW-2016-6 | 10/1/2020 | N | 0.279 | 1 | 8.37 | 1 | 30 | 0 | 0.884 | 1 | 7.9 | 1 | 659 | 1 | 2100 | 1 |
| MW-2016-8 | 9/27/2016 | N | 0.25 | 1 | 20 | 1 | 9 | 1 | 0.5 | 0 | 7.82 | 1 | 700 | 1 | 2200 | 1 |
| MW-2016-8 | 2/13/2017 | N | 0.26 | 1 | 22 | 1 | 9.2 | 1 | 0.5 | 0 | 7.52 | 1 | 730 | 1 | 2200 | 1 |
| MW-2016-8 | 3/16/2017 | N | 0.27 | 1 | 15 | 1 | 8.7 | 1 | 0.5 | 0 | 7.52 | 1 | 710 | 1 | 2200 | 1 |
| MW-2016-8 | 4/11/2017 | N | 0.27 | 1 | 14 | 1 | 8.7 | 1 | 0.5 | 0 | 7.25 | 1 | 740 | 1 | 2200 | 1 |
| MW-2016-8 | 5/18/2017 | N | 0.25 | 1 | 13 | 1 | 8 | 1 | 0.5 | 0 | 7.87 | 1 | 710 | 1 | 2200 | 1 |
| MW-2016-8 | 6/22/2017 | N | 0.25 | 1 | 13 | 1 | | | | | 7.51 | 1 | | | 2200 | 1 |
| MW-2016-8 | 7/19/2017 | N | 0.24 | 1 | 13 | 1 | | | | | 7.36 | 1 | | | 2300 | 1 |
| MW-2016-8 | 8/22/2017 | N | 0.26 | 1 | 16 | 1 | 8.7 | 1 | 0.5 | 0 | 7.49 | 1 | 720 | 1 | 2100 | 1 |
| MW-2016-8 | 10/9/2017 | N | | | | | 8.8 | 1 | 0.5 | 0 | 7.46 | 1 | 700 | 1 | | |
| MW-2016-8 | 10/12/2017 | N | | | | | 7.9 | 1 | 0.5 | 0 | 7.59 | 1 | 700 | 1 | | |
| MW-2016-8 | 4/18/2018 | N | 0.26 | 1 | 13 | 1 | 8.2 | 1 | 0.41 | 1 | 8.06 | 1 | 720 | 1 | 2200 | 1 |
| MW-2016-8 | 10/11/2018 | N | 0.267 | 1 | 13.4 | 1 | 8.22 | 1 | 0.372 | 1 | 8.43 | 1 | 717 | 1 | 2320 | 1 |
| MW-2016-8 | 5/20/2019 | N | 0.254 | 1 | 12.4 | 1 | 9.6 | 1 | 2.5 | 0 | 7.94 | 1 | 742 | 1 | 1910 | 1 |
| MW-2016-8 | 10/8/2019 | N | 0.259 | 1 | 12.2 | 1 | 9.13 | 1 | 0.353 | 1 | 8.08 | 1 | 691 | 1 | 2200 | 1 |
| MW-2016-8 | 6/9/2020 | N | | | | | | | | | 7.93 | 1 | | | | |
| MW-2016-8 | 6/10/2020 | N | 0.23 | 1 | | | 6.67 | 1 | 0.221 | 1 | 7.9 | 1 | 678 | 1 | 2180 | 1 |
| MW-2016-8 | 9/30/2020 | N | 0.266 | 1 | 12.1 | 1 | 30 | 0 | | | 7.92 | 1 | 675 | 1 | 2090 | 1 |