2021 Annual Groundwater Monitoring and Corrective Action Report

for Compliance with the Coal Combustion Residuals (CCR) Rule

Cherokee Station

Public Service Company of Colorado

January 31, 2022

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Table of Abbreviations and Acronyms

Abbreviation	Definition
BTV	background threshold value
CCR	Coal Combustion Residuals
COI	constituent of interest
EPA	Environmental Protection Agency
LCS	Laboratory Control Samples
MS/MSD	Matrix Spike/Duplicate
PSCo	Public Service Company of Colorado
QC	quality control
RPD	relative percent difference
SOP	Standard Operating Procedure
SSI	statistically significant increase
SSL	statistically significant level
TDS	Total Dissolved Solids
TSS	Total Suspended Solids

Certification

2021 Groundwater Monitoring Annual Report for Cherokee Station

I hereby certify to the best of my knowledge that this groundwater monitoring annual report is designed to meet the performance standard in 40 CFR Part 257 of the Federal Coal Combustion Residuals (CCR) Rule.

I am duly licensed Professional Engineer under the laws of the State of Colorado.

31-JAN-2022

Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2023

Summary of 40 CFR Section § 257.90(e)(6) Groundwater Monitoring System Requirements and Site-Specific Compliance at Cherokee Station			
§ 257.90(e)(6) *A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:*		**(Closed) Ash Impoundments Multiunit Status**	**(Closed) Cooling Tower Retention Pond Status**
§257.90(e)(6)(i)	*At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.*	Assessment Monitoring Program	Assessment Monitoring Program
§257.90(e)(6)(ii)	*At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.*	Assessment Monitoring Program	Assessment Monitoring Program
§257.90(e)(6)(iii)	*If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):*	Yes	Yes
§257.90(e)(6)(iii)(A)	*Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase.*	• MW-7 – boron, calcium, chloride, fluoride, sulfate, TDS • MW-9 – boron, calcium, chloride, fluoride, sulfate, TDS • MW-10 - boron, calcium, chloride, fluoride, pH, sulfate, TDS	• MW-15 - chloride, sulfate, TDS • MW-16 –sulfate and TDS
§257.90(e)(6)(iii)(B)	*Provide the date when the assessment monitoring program was initiated for the CCR unit.*	March 7, 2018	July 22-23, 2019
§257.90(e)(6)(iv)	*If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:*	No	No
§257.90(e)(6)(iv) (A)	*Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase.*	N/A	N/A
§257.90(e)(6)(iv) (B)	*Provide the date when the assessment of corrective measures was initiated for the CCR unit.*	N/A	N/A
§257.90(e)(6)(iv)(C)	*Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit.*	N/A	N/A
§257.90(e)(6)(iv)(D)	*Provide the date when the assessment of corrective measures was completed for the CCR unit.*	N/A	N/A
§257.90(e)(6)(v)	*Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection.*	N/A	N/A
§257.90(e)(6)(vi)	*(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.*	N/A	N/A

1.0 Introduction

The U.S. Environmental Protection Agency's (EPA's) final Coal Combustion Residuals (CCR) Rule establishes a comprehensive set of requirements for the management and disposal of CCR (or coal ash) in landfills and surface impoundments by electric utilities. Cherokee Station, located in Denver, Colorado (**Figure 1**), is owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy Company. Cherokee Station has four CCR units subject to the CCR Rule: the former West, Center, and East ash impoundments, and the former incised Cooling Tower Retention Pond (CTRP) (**Figure 2**). The CTRP was categorized as inactive as of the October 2015 effective date of the CCR Rule and became subject to the groundwater monitoring requirements under the Direct Final Rule effective October 4, 2016 (Extension Rule). The CTRP was closed in 2017 and the three ash impoundments were closed in 2018; all were physically closed by removal of CCR, with ongoing groundwater monitoring.

In 2021, groundwater monitoring was conducted at Cherokee to collect assessment monitoring samples at the (closed) CCR Ash Impoundments and the CTRP as specified under Part 257.95. This Annual Groundwater Monitoring Report presents the sampling and analysis completed in 2021:

- The status of the groundwater monitoring program for the (closed) West, Center, and East ash impoundments at the end of 2021 is in assessment monitoring.
- The status of the groundwater monitoring program for the (closed) CTRP at the end of 2021 is in assessment monitoring.

2.0 Facility Description

Historically, Cherokee Station was a coal-fired, steam turbine electric generating station; the fuel source for the coal-fired units was sub-bituminous, low-sulfur coal supplied by several mines in western Colorado. Cherokee Station ceased burning coal in August 2017 and is now reconfigured to natural gas. During the active coal operations, the former West, Center, and East ash impoundments (described herein as ash impoundments) were used for temporary storage of bottom ash (**Figure 2**). The three ash impoundments are considered a single CCR unit for groundwater monitoring due to the proximities of the impoundments to each other and the configuration relative to the groundwater flow direction. Fly ash was handled dry and collected in on-site silos. Both bottom ash and fly ash were hauled off site to facilities permitted for either beneficial use or disposal. The ash impoundments were physically closed by removal of all CCR, which was completed in December 2018; completion of CCR removal was certified by a Professional Engineer.

The CTRP historically received overflow from Cooling Tower 4 and CCR (**Figure 2**). The CTRP ceased receiving CCR prior to the October 2015 effective date of the CCR Rule and therefore met the definition of an inactive impoundment. The CTRP became subject to the groundwater monitoring requirements under the Direct Final Rule effective October 4, 2016. The pond was

physically closed by removal of all CCR, which was completed in March 2017; completion of CCR removal was certified by a Professional Engineer.

The operation and monitoring of the CCR units are described further in the Cherokee Station Groundwater Monitoring System Certification (HDR, 2019).

2.1 Hydrogeology

The uppermost aquifer under Cherokee Station is the alluvial aquifer associated with the nearby South Platte River and is present across the site. Groundwater under the CCR facilities flows east, perpendicular to the South Platte River, where it ultimately discharges to the river (GeoTrans, Inc., 2009). In the area of the ash impoundments, the alluvial aquifer is between 8 and 38 feet thick, mostly sandy, and is underlain by the low permeability claystone deposits of the Denver Formation that inhibit vertical downward flow to the deeper, regional Arapahoe Aquifer (GeoTrans, Inc., 2009). The Denver Formation is over 70 feet thick in this area (CDH, 1993). Further hydrogeologic characterization of the site is provided in the Cherokee Station Groundwater Monitoring System Certification (HDR, 2019).

2.2 Monitoring Well Network

2.2.1 West, Center, and East Ash Impoundments

The CCR Rule requires, at a minimum, one upgradient and three downgradient monitoring wells per CCR unit to be completed in the uppermost aquifer. Section 257.9 of the Rule states that the operator: "*…may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR unit."* In addition, the CCR Rule states that downgradient monitoring wells should be installed to: *"accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer."* The flow of groundwater under the CCR impoundments is eastward, perpendicular to the length of the impoundments. Five wells were sited in 2015 for CCR compliance for a multiunit monitoring network of all three impoundments, two hydraulically upgradient monitoring wells (MW-7 and MW-13) and three downgradient monitoring wells (MW-8, MW-9, and MW-10) (**Figure 2**). The MW-7 well location on the west side of the former West Impoundment is hydraulically upgradient of the impoundments (GeoTrans, Inc., 2009); however, the monitoring performed to date has identified that the ponds may have influenced well MW-7; therefore, the MW-7 well is not representative of background water. Monitoring well MW-13 is located upgradient of the CCR impoundments and serves as the background monitoring well for the former West, Center, and East ash impoundments **(Figure 2)**. No monitoring wells were installed or abandoned in 2021 for the former ash impoundments.

The three ash impoundments were closed in December 2018 by removal of all CCR after first dewatering the impoundments. The CCR was removed from each impoundment, exposing the native shale bedrock and native sands above the bedrock. Minor amounts of groundwater were observed on top of the native subgrade. During this time, three of the four monitoring wells adjacent to the impoundments were intermittently dry. These observations indicate that the

water in the former ash impoundments was causing some groundwater mounding beneath the ponds and controlling water levels in the monitoring wells surrounding the ponds.

No wells were installed or abandoned in 2021.

2.2.2 Cooling Tower Retention Pond

In 2018 four wells (MW-14, MW-15, MW-16, MW-17) were installed around the perimeter of the (closed) CTRP for CCR compliance (**Figure 2**). The groundwater flow direction beneath the pond is to the east. Monitoring wells MW-15, MW-16, and MW-17 were located along the perimeter of the east side of the pond to serve as downgradient wells at the waste boundary (**Figure 2**). MW-17 was observed to be damaged during the October 2021 sampling event. The well casing was repaired and HDR returned to collect a sample on December 8, 2021.

No wells were installed or abandoned in 2021; however well MW-17 surface casing above ground was damaged and repaired, requiring a new elevation survey. The well installation report will be updated in 2022 to reflect the new survey data. .

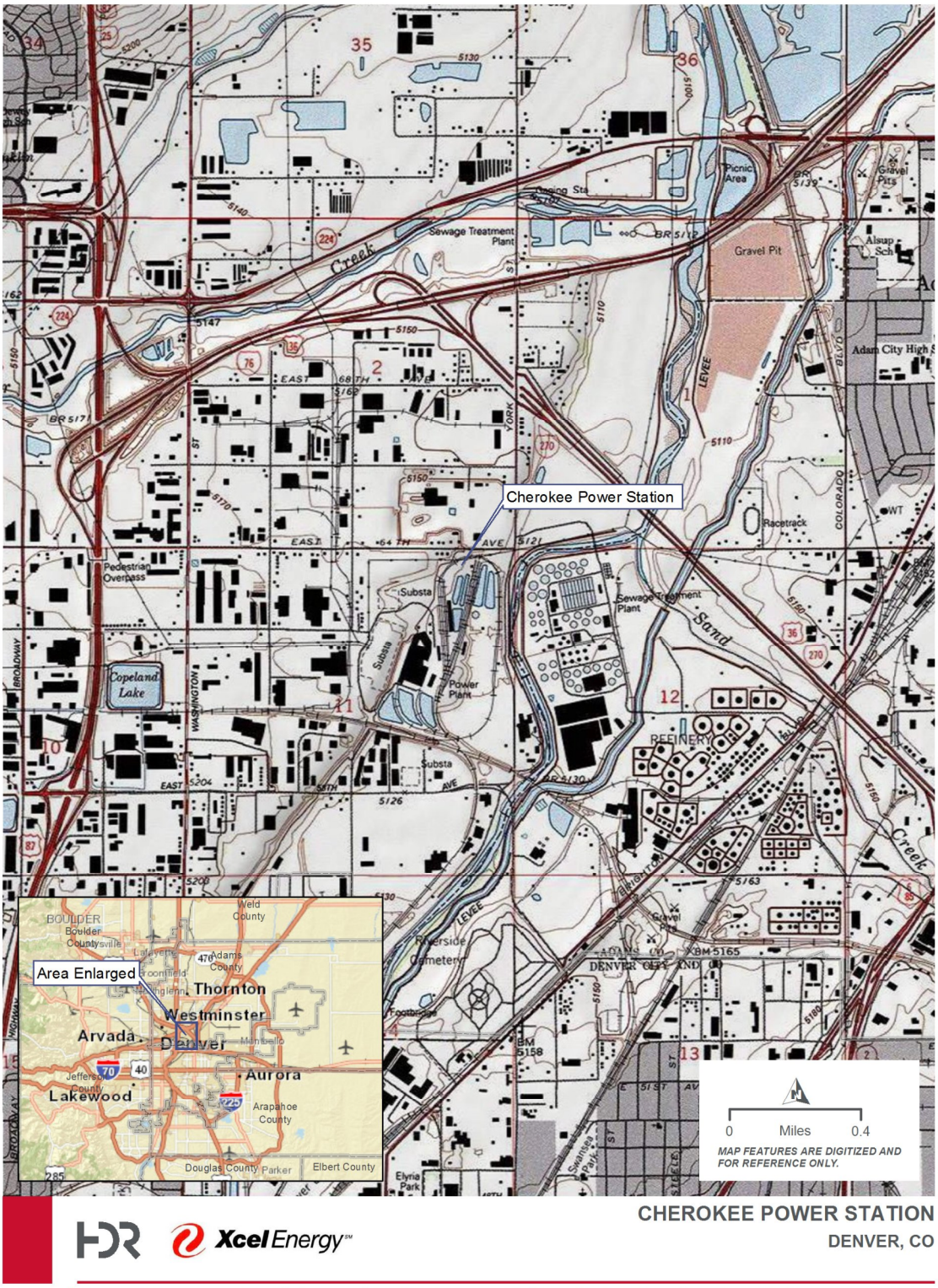


Figure 1. Vicinity map for Cherokee Station.

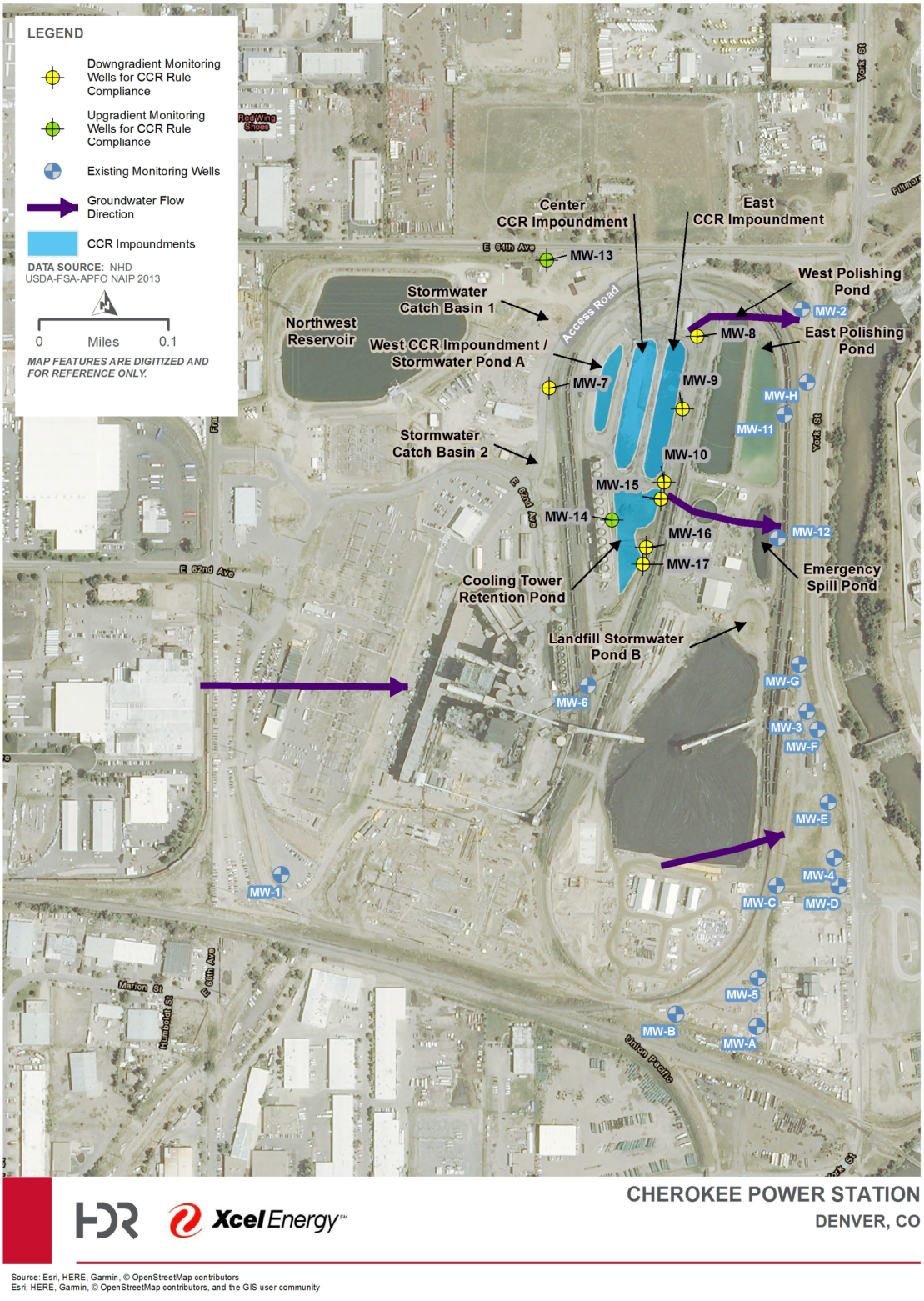


Figure 2. Cherokee Station – CCR unit and monitoring well location map.

3.0 Monitoring

3.1 Frequency

3.1.1 West, Center, and East Ash Impoundments

Assessment monitoring continued in 2021 for the former Ash Impoundments. An annual assessment monitoring event was completed on April 21-23, 2021 to sample all the monitoring wells around the impoundments for all Appendix III and IV constituents plus TSS (**Table 1**). Monitoring was performed at all of the certified monitoring network of wells (MW-7, MW-8, MW-9, MW-10, and MW-13); however, MW-8 and MW-9 were dry, thus samples were collected from MW-7, MW-10, and MW-13. **Table 2** provides the well identification, number of samples collected, dates samples were collected in 2021, and the respective assessment monitoring programs (per (257.90(e)(3))).

On October 19-20, 2021, semi-annual assessment monitoring was conducted at the former Ash Impoundments certified monitoring network wells. Samples were analyzed for all Appendix III and detected Appendix IV COIs plus TSS. Monitoring wells MW-8 and MW-9 were dry. Samples were collected from MW-10 and MW-13 (**Table 2**)**.**

Table 1. Groundwater quality parameters.

Appendix III Constituents for Detection Monitoring	Appendix IV Constituents for Assessment Monitoring
Boron	Antimony
Calcium	Arsenic
Chloride	Barium
Fluoride	Beryllium
pH	Cadmium
Sulfate	Chromium
Total Dissolved Solids (TDS)	Cobalt
Additional Parameters	Fluoride
Total Suspended Solids (TSS)	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
	Radium 226 and 228 combined

Table 2. Number and dates of groundwater samples collected in 2021 for each well and the required monitoring programs for the Cherokee Ash Ponds (257.90(e)(3))			
Monitoring Well I.D.	**Well Location**	**Dates Monitored**	**CCR Rule Monitoring Purpose**
MW-7	Upgradient[1]	April 23, 2021	Annual Assessment Monitoring
		September 15, 2021	Re-Sample due to high TSS in Annual AM event
		October 19, 2021[2]	Semi-annual Assessment Monitoring
MW-8	Downgradient	April 20, 2021*	Annual Assessment Monitoring
		October 19, 2021*	Semi-annual Assessment Monitoring
MW-9	Downgradient	April 20, 2021*	Annual Assessment Monitoring
		October 19, 2021*	Semi-annual Assessment Monitoring
MW-10	Downgradient	April 22, 2021	Annual Assessment Monitoring
		October 19, 2021	Semi-annual Assessment Monitoring
MW-13	Upgradient / Background	April 21, 2021	Annual Assessment Monitoring
		October 20, 2021	Semi-annual Assessment Monitoring

[1]Hydraulically upgradient though potentially influenced by impoundments

[2]Sampled first by another firm and there was inadequate volume remaining for HDR to sample. Well was still dry in December.

*Well was monitored and found to be dry, no sample could be collected

3.1.2 Cooling Tower Retention Pond

The initial assessment monitoring event was completed July 22-23, 2019 to sample all of the CTRP certified monitoring network wells for Appendix IV constituents. On October 22, 2019, the first semi-annual assessment monitoring samples were collected from all wells in the CTRP well network.

Assessment monitoring continued in 2020 as described in the 2020 Annual Monitoring Report. In 2021, PSCo completed an annual assessment monitoring event from April 22-23, 2021 and a semi-annual event from October 19-20, 2021. **Table 3** provides the well identification, number of samples collected, dates samples were collected in 2021, and whether the sample was required by the annual or semi-annual assessment monitoring programs (per (257.90(e)(3))).

Table 3. Number and dates of groundwater samples collected in 2021 for each well and the required monitoring programs for the Cherokee (closed) Cooling Tower Retention Pond (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-14	Upgradient / Background	June 10, 2021[1]	Annual Assessment Monitoring
		October 20, 2021	Semi-annual Assessment Monitoring
MW-15	Downgradient	April 22, 2021	Annual Assessment Monitoring
		September 14, 2021	Re-sample due to high TSS in Annual AM event
		October 19, 2021	Semi-annual Assessment Monitoring
MW-16	Downgradient	April 23, 2021	Annual Assessment Monitoring
		October 19, 2021	Semi-annual Assessment Monitoring
MW-17	Downgradient	April 23, 2021	Annual Assessment Monitoring
		December 8, 2021[2]	Semi-annual Assessment Monitoring

[1]Bailed dry during April 22-23 sampling event; allowed to recharge and sampled on June 10th

[2]Well casing was damaged to the extent that sampling could not be done during the October 19-20th sampling event. Sampling was completed December 8th after the well casing was repaired.

3.2 Water Levels and Sample Collection

Water levels were collected in each well prior to sample collection. Groundwater quality samples were collected in all monitoring wells unless wells were dry. Groundwater sample collection protocols follow the Groundwater Sample Collection Standard Operating Procedure (SOP) (HDR, 2016). The water samples were collected using a submersible Geotech SS Geosub

pump, and the pump and hose were decontaminated between wells following protocols outlined in the Sampling SOP. Each well was purged until field parameters stabilized in accordance with the Sampling SOP. In accordance with the CCR Rule, groundwater samples were not field filtered. The field parameters of turbidity, pH, and temperature were measured using a YSI Professional Plus (or an equivalent) portable water quality instrument that was calibrated prior to use each day of sampling. The results of field measurements were recorded on a field data form, which is maintained as part of the field sampling records. For quality control (QC), one field duplicate sample and one field equipment blank sample was collected during each sample event. Water samples were delivered under Chain of Custody to TestAmerica in Denver, Colorado.

3.3 Analytical Testing

Groundwater samples were analyzed for the COIs shown in **Table 1**. The assessment monitoring samples were analyzed for Appendix III and Appendix IV COIs, plus TSS.

3.4 Data Validation and Data Management

Data validation and data management tasks were performed per the Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule (HDR, 2017). Data validation was conducted to eliminate data that did not meet validation criteria and designate a data qualifier for any data quality limitation discovered.

All samples and quality control (QC) were reviewed and evaluated, and no samples were rejected. Most QC analyses were within reportable limits; however, when QC was outside limit controls, samples were reported as estimated. Relative percent difference (RPD) results for field duplicate analyses were generally within the control limit criterion of 20% and qualified as estimated where necessary. Outliers were identified for TSS (one instance) and radiochemistry (two instances). Lab duplicate analyses were all within the control limit criterion. Laboratory Control Sample (LCS)/LCS duplicates recoveries and RPDs were all within control limits. Matrix Spike/Duplicate (MS/MSD) recoveries and RPDs were generally within control limits. Outliers were identified for RPD for mercury (one instance). Data analyses required minimal qualifications, and all data were usable, even when qualified.

4.0 Monitoring Results

4.1 Water Levels and Groundwater Flow Direction

The water levels at monitoring wells were recorded during monitoring events. In both assessment monitoring events, wells MW-8 and MW-9 were dry. These observations indicate that the water in the former ash impoundments was causing some groundwater mounding beneath the ponds and controlling water levels in the monitoring wells surrounding the ponds. The monitoring wells are completed at the bottom of the alluvial aquifer, which is underlain by the low permeability claystone deposits of the Denver Formation. The Denver Formation is over 70 feet thick in this area and inhibits vertical downward flow to the deeper, regional Arapahoe Aquifer (CDH 1993; GeoTrans, Inc. 2009). Drilling wells deeper in the location of these dry

downgradient wells would result in wells completed in the claystone confining unit and no longer in the upper aquifer and is therefore not recommended.

The contour map in **Appendix A** reflects water level data from October 2021 and is consistent with the water level data from April 2021. Groundwater flow under the ash ponds is to the southeast. The water levels and contour map (**Appendix A**) confirm that monitoring well MW-13 is located upgradient of the ash ponds and remains appropriate to represent background water quality for the West, Center, and East ash impoundments. The MW-7 well location on the west side of the West Impoundment is hydraulically upgradient of the impoundments; however, the monitoring performed to date has identified that the ponds may have influenced water quality at well MW-7; therefore, the MW-7 well is not representative of background water.

During the October 2021 semi-annual assessment monitoring event, well MW-7 was sampled first by another firm for the PSCo CDPHE compliance groundwater monitoring program and there was inadequate volume remaining for HDR to take a sample. When HDR returned to sample MW-17 in December (see Note 2 of Table 3), MW-7 was checked and was still dry. After closure of the three ash impoundments, the combined footprint of the impoundments has been used for the construction of a large lined non-CCR waste impoundment. The lack of water in MW-7 during the latter half of 2021 coincides with the construction of the lined impoundment which further supports the earlier theory of MW-7 being potentially impacted by historical ash impoundment mounding.

The water levels and contour map (**Appendix A**) confirm that monitoring well MW-14 is located upgradient of the CTRP and remains appropriate to represent background water quality for the CTRP. Groundwater flow under the CTRP is to the east. Therefore, the selected downgradient wells are appropriately located to monitor the CCR impoundments.

4.2 Water Quality

4.2.1 West, Center, and East Ash Impoundments

As stipulated in the CCR Rule, eight rounds of background groundwater sampling and detection monitoring were completed before October 17, 2017 for the former West, Center, and East ash impoundments. The background sampling was described in detail in the *Background Water Quality Statistical Certification* (HDR 2020). The first detection monitoring event was conducted on September 12-14, 2017. In the January 15, 2018 PSCo memorandum, *Determination of Statistically Significant Increases over Background per 257.93(h)(2)*, concentrations of Appendix III COIs from downgradient monitoring wells MW-7, MW-9, and MW-10 (MW-8 was dry) were compared against the BTVs and several COIs were shown to have SSIs over BTVs (upper prediction limit). These SSIs triggered the assessment monitoring program for the impoundments.

In accordance with CCR Rule 257.95(h), GPS were established for each detected Appendix IV COI and documented in the October 10, 2018 memorandum *Groundwater Protection Standards and Determination of no SSIs per 257.95(g)*. For each detected COI, **Table 4** lists the EPA established MCL from 40 CFR 141.62 and 141.66, the BTV (upper tolerance level) for the Cherokee ash impoundments, and the GPS.

Table 4. Groundwater Protection Standards for Detected Appendix IV COIs for the Ash Impoundments 257.95(d)(3)				
Constituent	**Unit**	**MCL**	**Background Value (UTL)**	**GPS**
Antimony	mg/l	0.00600	0.000570	0.00600
Arsenic	mg/l	0.0100	0.00135	0.0100
Barium	mg/l	2.00	0.136	2.00
Cadmium	mg/l	0.00500	0.000310	0.00500
Chromium, Total	mg/l	0.100	0.0118	0.100
Cobalt	mg/l	0.00600	0.000970	0.00600
Fluoride	mg/l	4.00	1.20	4.00
Lead	mg/l	0.0150	0.00130	0.0150
Lithium	mg/l	0.0400	0.159	0.159
Mercury	mg/l	0.00200	0.0000270	0.00200
Molybdenum	mg/l	0.100	0.00473	0.100
Radium-226-228	pci/l	5.0^	1.23	5.0
Selenium	pci/l	0.0500	0.0109	0.0500

*EPA adopted health-based value in place of MCL.
^Colorado Water Quality Regulation

Closure of the former West, Center, and East ash impoundments was completed in December 2018 through removal of CCR per 257.102(e)(i). The CCR material has been removed from the former impoundments, and concentrations of CCR constituents are expected to decrease through natural attenuation. All groundwater monitoring at the impoundments occurring after December 2018 reflects new conditions (post-closure) after the CCR waste was removed. In 2021, PSCo continued to monitor groundwater in accordance with the assessment monitoring program and consistent with 257.93(e) to evaluate whether clean closure criteria in groundwater have been met. Assessment monitoring samples were collected and analyzed for all Appendix III and Appendix IV COIs in April and October 2021. Laboratory reports for the 2021 assessment monitoring events are provided in **Appendix B**.

After the April 2021 annual assessment monitoring event, in accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against background values, and some concentrations were found to be above background values. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found not to exceed GPS. Therefore, in accordance with CCR Rule 257.95(f), the CCR unit continued in assessment monitoring.

In response to high TSS levels in the April 2021 MW-7 groundwater sample, an additional sample was taken from MW-7 on September 15, 2021 to analyze for Appendix III and IV metals, dissolved metals, and TSS. No COIs were found to exceed GPS.

After the October 2021 semi-annual assessment monitoring event and in accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against background values, and some concentrations were found to be above background values. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and selenium was found to be greater than the GPS for this event with a concentration of 0.078 mg/L in MW-10 and a GPS of 0.05 mg/L. Therefore, in accordance with CCR Rule 257.95(g), the downgradient well data from October 2021 was statistically evaluated to calculate lower confidence limits and compared to GPS. No concentrations were found to be at statistically significant levels (SSLs) above the GPS. Therefore, in accordance with CCR Rule 257.95(f), the CCR unit continues in assessment monitoring.

In 2022 PSCo will continue to sample and evaluate assessment monitoring data in accordance with CCR Rule 257.95.

4.2.2 Cooling Tower Retention Pond

Removal of CCR and all areas affected by releases of CCR at the CTRP was completed in March 2017. The CCR material has been completely removed from the pond. Therefore, it is important to note that all groundwater monitoring occurring after March 2017 at the CTRP reflect post-CCR removal conditions.

The first detection monitoring event was conducted on February 11, 2019. Detection monitoring verification samples were also collected on April 9, May 7, and June 3, 2019. In the June 13, 2019 PSCo memorandum, *Determination of Statistically Significant Increases over Background per 257.93(h)(2)*, concentrations of Appendix III COIs from downgradient monitoring wells at the former CTRP were compared against the BTVs and several were shown to have SSIs over BTVs. These SSIs triggered the assessment monitoring program for the former CTRP.

In accordance with CCR Rule 257.95(h), GPS were established for each detected Appendix IV COI and documented in the June 13, 2019 memorandum *Groundwater Protection Standards and Determination of no SSIs per 257.95(g)*. For each detected COI, **Table 5** lists the EPA established MCL from 40 CFR 141.62 and 141.66, the BTV (upper tolerance level) for the Cherokee CTRP, and the GPS.

Table 5. Groundwater Protection Standards for Detected Appendix IV COIs for the CTRP 257.95(d)(3)

Constituent	Unit	MCL	Background Value (UTL)	GPS
Antimony	mg/l	0.00600	0.00089	0.00600
Arsenic	mg/l	0.0100	0.0031	0.0100
Barium	mg/l	2.00	0.260	2.00
Cadmium	mg/l	0.00500	0.00048	0.00500
Chromium, Total	mg/l	0.100	0.0340	0.100
Cobalt	mg/l	0.00600	0.0110	0.0110
Fluoride	mg/l	4.00	4.08	4.08
Lead	mg/l	0.0150	0.0140	0.0150
Lithium	mg/l	0.0400	0.0940	0.0940
Molybdenum	mg/l	0.100	0.0720	0.100
Radium-226-228	pci/l	5.0^	1.34	5.0
Selenium	pci/l	0.0500	0.0110	0.0500
Thallium	mg/l	0.0020	0.000540	0.0020

*EPA adopted health-based value in place of MCL.
^Colorado Water Quality Regulation

Assessment monitoring was conducted in second half of 2019 and in 2020. Annual and semi-annual assessment monitoring samples were collected from all of the former CTRP monitoring wells (MW-14, MW-15, MW-16, and MW-17) in April and October of 2021. Samples were analyzed for Appendix III and detected Appendix IV COIs plus TSS. Laboratory reports are provided in **Appendix B**. Statistics were completed after each assessment monitoring sample event. After the April 2021 assessment monitoring event, in accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against background values, and Appendix III COI concentrations were found to be above BTVs. Some detected Appendix IV COI concentrations in downgradient wells were found to be above background values and were also compared against GPS and selenium was found to be greater than the GPS for this event at a selenium concentration of 0.066 mg/L in well MW-15 (GPS is 0.05 mg/L). Therefore, in accordance with CCR Rule 257.95(g), the downgradient well data from April 2021 was statistically evaluated to calculate lower confidence limits and compared to GPS. No concentrations were found to be at statistically significant levels (SSLs) above the GPS. Therefore, in accordance with 257.95(e-f), the CCR unit continued in assessment monitoring.

In response to high TSS levels in the April 2021 MW-15 groundwater sample, an additional sample was taken from MW-15 on September 14, 2021 to analyze for Appendix III and IV metals, dissolved metals, and TSS. Selenium concentrations were above the GPS but did not statistically exceed the GPS.

After the October 2021 assessment monitoring event, in accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against background values, and some concentrations were found to be above background values. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared

against GPS and selenium was found to be greater than the GPS for this event at a selenium concentration of 0.059 mg/L in well MW-15 and GPS of 0.05 mg/L. Therefore, in accordance with CCR Rule 257.95(g), the downgradient well data from October 2021 was statistically evaluated to calculate lower confidence limits and compared to GPS. No concentrations were found to be at statistically significant levels (SSLs) above the GPS. Therefore, in accordance with 257.95(g), the CCR unit continues in assessment monitoring.

5.0 Summary

The following observations are based on CCR Rule compliance monitoring data collected during the 2021 and prior sample events:

(Closed) West, Center, and East Ash Impoundments

- CCR waste was removed from the three ash impoundments by December 2018. Groundwater monitoring continues to evaluate the post-closure groundwater quality.
- The certified well network wells for the ash impoundments were sampled April 21-23, 2021 for annual assessment monitoring for Appendix III and IV COIs (MW-8 and MW-9 were dry). Concentrations of some Appendix III COIs remained above BTVs. No concentrations were observed above the GPS.
- The certified well network wells for the impoundments were sampled October 19-20, 2021 for semiannual assessment monitoring for Appendix III and detected IV COIs (MW-8, and MW-9 were dry). Concentrations of some Appendix III COIs remained above BTVs. Concentrations of selenium in MW-10 were observed above the GPS, but not a statistical exceedance.
- Cherokee Station Ash Impoundments status at the end of 2021 is assessment monitoring. Assessment monitoring will continue in 2022 while continuing to evaluate whether clean closure criteria in groundwater have been met.

(Closed) Cooling Tower Retention Pond

- CCR waste was removed from the CTRP by March 30, 2017. Groundwater monitoring continues to evaluate the post-closure groundwater quality.
- In 2020 the data from the October 2019 assessment monitoring event was statistically evaluated. Some concentrations were found to be above background values but were found not to exceed GPS.
- The certified well network for the CTRP was sampled April 22-23, 2021 for annual assessment monitoring for Appendix III and IV COIs. Concentrations of some Appendix III COIs exceeded BTVs and selenium concentration in MW-15 was observed above the GPS but not statistically exceeding the GPS.
- The certified well network for the CTRP was sampled October 19-20, 2021 for semiannual assessment monitoring for Appendix III and detected IV COIs (MW-8 and MW-9 were dry). Some concentrations were found to be above background values. Concentrations in downgradient wells were compared against GPS and only a slight GPS exceedance of selenium at MW-15 was observed. No concentrations were found to be at SSLs above the GPS.

- Cherokee Station CTRP status at the end of 2021 is in assessment monitoring; however, because the pond has been closed all monitoring reflects post-CCR removal. Assessment monitoring will continue to evaluate whether clean closure criteria in groundwater have been met.

6.0 References

CDH (Colorado Department of Health), 1993. Record of Decision ASARCO Globe Plant Site. Denver, Colorado. February 18, 1993.

GeoTrans, Inc., 2009. Letter to Christine Johnston, Xcel Energy. Groundwater/Surface-Ponds Data Evaluation, Cherokee Station, Denver, Colorado. March 2009.

HDR, 2019. Groundwater Monitoring System Certification - Compliance with the Coal Combustion Residuals Rule Cherokee Station. April 26, 2016.

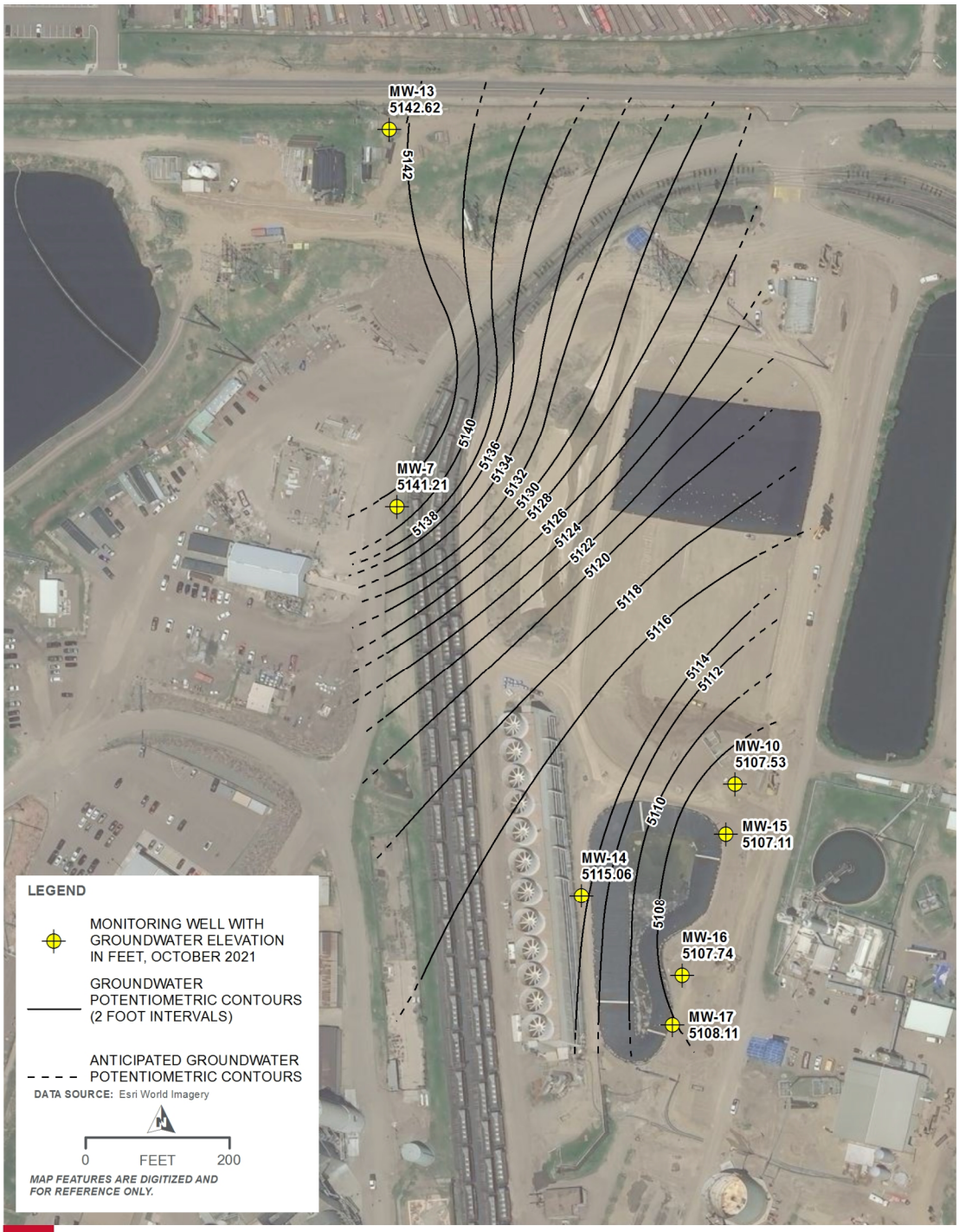
HDR, 2019. Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule. Updated July 19, 2019.

HDR, 2020. Background Water Quality Statistical Certification. January 31, 2020.

Tetra Tech, 2013. Inventory and Preliminary Classification Report, Waste Impoundments, Cherokee Station, Denver, Colorado. March 29, 2013.

Appendix A

Potentiometric Surface Map



Xcel Energy℠

CHEROKEE POWER STATION

ADAMS COUNTY, CO

PATH: J:\2015\15-115_XCEL_CORE_SAMPLING_TESTING_(WALTHER)\MAP_DOCS\GROUNDWATER_CONTROURS\CHEROKEE_GWCONTOUR_OCT2021.MXD - USER: AKAPLE - DATE: 1/10/2022

Appendix B

Laboratory Reports

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-147818-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
5/19/2021 12:35:38 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
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: 280-147818-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-147818-1

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 4/23/2021. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 3.8º C, 4.8º C, 4.8º C and 5.0º C.

Please note, the chain of custody was marked for Dissolved metals for all samples. Per client, only sample MW-7 required dissolved metals and required lab filtration.

DISSOLVED METALS- Method 6010C/6020A/7470A
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS- Method 6010C/6020A/7470A
The accuracy and precision of the Calcium MS/MSD performed on a sample MW-15 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

MS/MSD analyses were performed on sample MW-13. The MS/MSD for Mercury method 7470A exhibited spike compound recoveries outside the QC limits. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

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

GENERAL CHEMISTRY- VARIOUS
Several samples required dilution prior to analysis for Method 9056A. The reporting limits have been adjusted accordingly.

The pH sample duplicate analysis data associated with QC batch 280-534411 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Dissolved Solids (TDS) sample duplicate analysis data associated with QC batch 280-534339 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Fluoride method 9056A exhibited spike compound

Job ID: 280-147818-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-13 — Lab Sample ID: 280-147818-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.49		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.076		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00032	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	120		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0012	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.00062	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.038		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0030	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0032	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00026	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	170		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	170		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	890		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	7.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 280-147818-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.4		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.0016	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0027	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.031		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	170		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0054		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0097		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.081		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.084		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.066		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		60	20	mg/L	20		9056A	Total/NA
Fluoride	2.6		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	430		100	21	mg/L	20		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-15 (Continued) — Lab Sample ID: 280-147818-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	1500		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 280-147818-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.8		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.00079	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.056		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00093	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Cadmium	0.00025	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	260		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0094		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0047		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.087		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.066		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.029		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00038	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	350		60	20	mg/L	20		9056A	Total/NA
Fluoride	2.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	830		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2100		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-10-FD — Lab Sample ID: 280-147818-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.7		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.00065	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0024	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.062		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00031	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Cadmium	0.00026	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	260		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-10-FD (Continued)
Lab Sample ID: 280-147818-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0098		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0050		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.092		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.067		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.030		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	370		30	10	mg/L	10		9056A	Total/NA
Fluoride	2.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	880		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2100		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	13		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-10-EB
Lab Sample ID: 280-147818-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.00051	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	5.0	J	10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-17
Lab Sample ID: 280-147818-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.52		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0033	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.051		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00036	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Cadmium	0.0013		0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	94		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00028	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.030		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0064	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0052		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	120		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	240		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	790		10	4.7	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-17 (Continued) — Lab Sample ID: 280-147818-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 280-147818-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.33		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0023	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.043		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	77		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00033	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.038		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.013		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0029	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	150		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.9		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	160		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	700		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 280-147818-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.10	0.023	mg/L	1		6010C	Total Recoverable
Boron	990		100	23	ug/L	1		6010C	Dissolved
Antimony	0.00093	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0079		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.097		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.0017		0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Cadmium	0.00032	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	70		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.024		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0066		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.019		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.042		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.025		0.010	0.0011	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-7 (Continued)
Lab Sample ID: 280-147818-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.014		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00039	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Antimony	0.74	J	2.0	0.57	ug/L	1		6020A	Dissolved
Arsenic	4.2	J	5.0	0.75	ug/L	1		6020A	Dissolved
Barium	14		5.0	2.2	ug/L	1		6020A	Dissolved
Calcium	56000		1000	580	ug/L	1		6020A	Dissolved
Chromium	3.4		2.0	0.98	ug/L	1		6020A	Dissolved
Lithium	25		8.0	1.7	ug/L	1		6020A	Dissolved
Molybdenum	31		5.0	1.1	ug/L	1		6020A	Dissolved
Selenium	13		5.0	0.89	ug/L	1		6020A	Dissolved
Mercury	0.25		0.20	0.13	ug/L	1		7470A	Total/NA
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	210		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	750		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	420		20	5.5	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
FILTRATION	Sample Filtration	None	TAL CAN

Protocol References:

None = None

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 CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Sample Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-147818-1	MW-13	Water	04/21/21 13:25	04/23/21 14:35	
280-147818-2	MW-15	Water	04/22/21 09:30	04/23/21 14:35	
280-147818-3	MW-10	Water	04/22/21 12:10	04/23/21 14:35	
280-147818-4	MW-10-FD	Water	04/22/21 12:10	04/23/21 14:35	
280-147818-5	MW-10-EB	Water	04/22/21 13:00	04/23/21 14:35	
280-147818-6	MW-17	Water	04/23/21 10:10	04/23/21 14:35	
280-147818-7	MW-16	Water	04/23/21 11:40	04/23/21 14:35	
280-147818-8	MW-7	Water	04/23/21 13:35	04/23/21 14:35	

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

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.49		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 18:50	1

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.4		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:19	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.8		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:23	1

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.7		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:28	1

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:32	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.52		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:37	1

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.33		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:41	1

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 19:54	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	990		100	23	ug/L		04/28/21 14:00	04/29/21 20:15	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 21:57	1
Arsenic	ND		0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 21:57	1
Barium	0.076		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 21:57	1
Beryllium	0.00032	J	0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 21:57	1
Cadmium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:57	1
Calcium	120		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 21:57	1
Chromium	0.0012	J	0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 21:57	1
Cobalt	0.00062	J	0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 21:57	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 21:57	1
Lithium	0.038		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 21:57	1
Molybdenum	0.0030	J	0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 21:57	1
Selenium	0.0032	J	0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 21:57	1
Thallium	0.00026	J	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:57	1

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0016	J	0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 21:59	1
Arsenic	0.0027	J	0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 21:59	1
Barium	0.031		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 21:59	1
Beryllium	ND		0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 21:59	1
Cadmium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:59	1
Calcium	170		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 21:59	1
Chromium	0.0054		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 21:59	1
Cobalt	0.0097		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 21:59	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 21:59	1
Lithium	0.081		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 21:59	1
Molybdenum	0.084		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 21:59	1
Selenium	0.066		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 21:59	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:59	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00079	J	0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:17	1
Arsenic	0.0015	J	0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:17	1
Barium	0.056		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:17	1
Beryllium	0.00093	J	0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:17	1
Cadmium	0.00025	J	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:17	1
Calcium	260		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:17	1
Chromium	0.0094		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:17	1
Cobalt	0.0047		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:17	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:17	1
Lithium	0.087		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:17	1
Molybdenum	0.066		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:17	1
Selenium	0.029		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:17	1
Thallium	0.00038	J	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:17	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00065**	**J**	0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:19	1
Arsenic	**0.0024**	**J**	0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:19	1
Barium	**0.062**		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:19	1
Beryllium	**0.00031**	**J**	0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:19	1
Cadmium	**0.00026**	**J**	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:19	1
Calcium	**260**		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:19	1
Chromium	**0.0098**		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:19	1
Cobalt	**0.0050**		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:19	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:19	1
Lithium	**0.092**		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:19	1
Molybdenum	**0.067**		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:19	1
Selenium	**0.030**		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:19	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:19	1

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:22	1
Arsenic	ND		0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:22	1
Barium	ND		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:22	1
Beryllium	**0.00051**	**J**	0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:22	1
Cadmium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:22	1
Calcium	ND		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:22	1
Chromium	ND		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:22	1
Cobalt	ND		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:22	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:22	1
Lithium	ND		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:22	1
Molybdenum	ND		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:22	1
Selenium	ND		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:22	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:22	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:24	1
Arsenic	**0.0033**	**J**	0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:24	1
Barium	**0.051**		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:24	1
Beryllium	**0.00036**	**J**	0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:24	1
Cadmium	**0.0013**		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:24	1
Calcium	**94**		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:24	1
Chromium	ND		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:24	1
Cobalt	**0.00028**	**J**	0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:24	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:24	1
Lithium	**0.030**		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:24	1
Molybdenum	**0.0064**	**J**	0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:24	1
Selenium	**0.0052**		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:24	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:24	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:27	1
Arsenic	**0.0023**	**J**	0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:27	1
Barium	**0.043**		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:27	1
Beryllium	ND		0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:27	1
Cadmium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:27	1
Calcium	**77**		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:27	1
Chromium	ND		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:27	1
Cobalt	**0.00033**	**J**	0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:27	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:27	1
Lithium	**0.038**		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:27	1
Molybdenum	**0.013**		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:27	1
Selenium	**0.0029**	**J**	0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:27	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:27	1

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00093**	**J**	0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 22:29	1
Arsenic	**0.0079**		0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 22:29	1
Barium	**0.097**		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 22:29	1
Beryllium	**0.0017**		0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 22:29	1
Cadmium	**0.00032**	**J**	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:29	1
Calcium	**70**		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 22:29	1
Chromium	**0.024**		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 22:29	1
Cobalt	**0.0066**		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 22:29	1
Lead	**0.019**		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 22:29	1
Lithium	**0.042**		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 22:29	1
Molybdenum	**0.025**		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 22:29	1
Selenium	**0.014**		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 22:29	1
Thallium	**0.00039**	**J**	0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 22:29	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.74**	**J**	2.0	0.57	ug/L		04/28/21 14:00	04/30/21 22:59	1
Arsenic	**4.2**	**J**	5.0	0.75	ug/L		04/28/21 14:00	04/30/21 22:59	1
Barium	**14**		5.0	2.2	ug/L		04/28/21 14:00	04/30/21 22:59	1
Beryllium	ND		1.0	0.31	ug/L		04/28/21 14:00	04/30/21 22:59	1
Cadmium	ND		1.0	0.20	ug/L		04/28/21 14:00	04/30/21 22:59	1
Calcium	**56000**		1000	580	ug/L		04/28/21 14:00	04/30/21 22:59	1
Chromium	**3.4**		2.0	0.98	ug/L		04/28/21 14:00	04/30/21 22:59	1
Cobalt	ND		1.0	0.19	ug/L		04/28/21 14:00	04/30/21 22:59	1
Lead	ND		1.0	0.45	ug/L		04/28/21 14:00	04/30/21 22:59	1
Lithium	**25**		8.0	1.7	ug/L		04/28/21 14:00	04/30/21 22:59	1
Molybdenum	**31**		5.0	1.1	ug/L		04/28/21 14:00	04/30/21 22:59	1
Selenium	**13**		5.0	0.89	ug/L		04/28/21 14:00	04/30/21 22:59	1

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.0	0.20	ug/L		04/28/21 14:00	04/30/21 22:59	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	F1	0.20	0.13	ug/L		05/03/21 14:00	05/05/21 10:55	1

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:42	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:44	1

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:51	1

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:53	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:55	1

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:57	1

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.25**		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:59	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 18:01	1

General Chemistry

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			04/28/21 18:29	1
Temperature	19.5	HF	1.0	1.0	Degrees C			04/28/21 18:29	1
Chloride	170		3.0	1.0	mg/L			05/17/21 15:27	1
Fluoride	1.3		0.50	0.17	mg/L			05/17/21 15:27	1
Sulfate	170		50	10	mg/L			05/17/21 15:41	10
Total Dissolved Solids (TDS)	890		20	9.4	mg/L			04/28/21 16:02	1
Total Suspended Solids	7.6		4.0	1.1	mg/L			04/28/21 15:23	1

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/28/21 18:45	1
Temperature	20.7	HF	1.0	1.0	Degrees C			04/28/21 18:45	1
Chloride	260		60	20	mg/L			05/17/21 16:11	20
Fluoride	2.6		0.50	0.17	mg/L			05/17/21 15:56	1
Sulfate	430		100	21	mg/L			05/17/21 16:11	20
Total Dissolved Solids (TDS)	1500		40	19	mg/L			04/29/21 12:11	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/28/21 15:23	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/28/21 18:49	1
Temperature	19.8	HF	1.0	1.0	Degrees C			04/28/21 18:49	1
Chloride	350		60	20	mg/L			05/17/21 18:11	20
Fluoride	2.2		0.50	0.17	mg/L			05/17/21 17:56	1
Sulfate	830		100	21	mg/L			05/17/21 18:11	20
Total Dissolved Solids (TDS)	2100		20	9.4	mg/L			04/29/21 12:11	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			04/28/21 15:23	1

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/28/21 18:52	1
Temperature	19.4	HF	1.0	1.0	Degrees C			04/28/21 18:52	1
Chloride	370		30	10	mg/L			05/17/21 18:41	10
Fluoride	2.3		0.50	0.17	mg/L			05/17/21 18:26	1
Sulfate	880		50	10	mg/L			05/17/21 18:41	10
Total Dissolved Solids (TDS)	2100		20	9.4	mg/L			04/29/21 12:11	1
Total Suspended Solids	13		4.0	1.1	mg/L			04/28/21 15:23	1

General Chemistry

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.6	HF	0.1	0.1	SU			04/29/21 21:16	1
Temperature	18.6	HF	1.0	1.0	Degrees C			04/29/21 21:16	1
Chloride	ND		3.0	1.0	mg/L			05/17/21 18:55	1
Fluoride	ND		0.50	0.17	mg/L			05/17/21 18:55	1
Sulfate	ND		5.0	1.0	mg/L			05/17/21 18:55	1
Total Dissolved Solids (TDS)	5.0	J	10	4.7	mg/L			04/29/21 12:11	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/27/21 16:32	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			04/28/21 19:03	1
Temperature	19.4	HF	1.0	1.0	Degrees C			04/28/21 19:03	1
Chloride	120		3.0	1.0	mg/L			05/17/21 21:04	1
Fluoride	1.7		0.50	0.17	mg/L			05/17/21 21:04	1
Sulfate	240		50	10	mg/L			05/17/21 21:19	10
Total Dissolved Solids (TDS)	790		10	4.7	mg/L			04/29/21 12:11	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			04/27/21 16:32	1

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/28/21 19:07	1
Temperature	20.0	HF	1.0	1.0	Degrees C			04/28/21 19:07	1
Chloride	150		3.0	1.0	mg/L			05/17/21 21:34	1
Fluoride	1.9		0.50	0.17	mg/L			05/17/21 21:34	1
Sulfate	160		100	21	mg/L			05/17/21 21:49	20
Total Dissolved Solids (TDS)	700		20	9.4	mg/L			04/29/21 12:11	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			04/27/21 16:32	1

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/28/21 19:11	1
Temperature	20.2	HF	1.0	1.0	Degrees C			04/28/21 19:11	1
Chloride	110		3.0	1.0	mg/L			05/17/21 22:04	1
Fluoride	2.3		0.50	0.17	mg/L			05/17/21 22:04	1
Sulfate	210		50	10	mg/L			05/17/21 22:19	10
Total Dissolved Solids (TDS)	750		20	9.4	mg/L			04/29/21 12:11	1
Total Suspended Solids	420		20	5.5	mg/L			04/27/21 16:32	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-483223/1-A
Matrix: Water
Analysis Batch: 483541

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		04/28/21 14:00	04/29/21 18:41	1

Lab Sample ID: LCS 240-483223/2-A
Matrix: Water
Analysis Batch: 483541

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.09		mg/L		109	80 - 120

Lab Sample ID: 280-147818-1 MS
Matrix: Water
Analysis Batch: 483541

Client Sample ID: MW-13
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.49		1.00	1.55		mg/L		106	75 - 125

Lab Sample ID: 280-147818-1 MSD
Matrix: Water
Analysis Batch: 483541

Client Sample ID: MW-13
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.49		1.00	1.57		mg/L		108	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-483223/1-A
Matrix: Water
Analysis Batch: 483693

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/28/21 14:00	04/30/21 21:52	1
Arsenic	ND		0.0050	0.00075	mg/L		04/28/21 14:00	04/30/21 21:52	1
Barium	ND		0.0050	0.0022	mg/L		04/28/21 14:00	04/30/21 21:52	1
Beryllium	ND		0.0010	0.00031	mg/L		04/28/21 14:00	04/30/21 21:52	1
Cadmium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:52	1
Calcium	ND		1.0	0.58	mg/L		04/28/21 14:00	04/30/21 21:52	1
Chromium	ND		0.0020	0.00098	mg/L		04/28/21 14:00	04/30/21 21:52	1
Cobalt	ND		0.0010	0.00019	mg/L		04/28/21 14:00	04/30/21 21:52	1
Lead	ND		0.0010	0.00045	mg/L		04/28/21 14:00	04/30/21 21:52	1
Lithium	ND		0.0080	0.0017	mg/L		04/28/21 14:00	04/30/21 21:52	1
Molybdenum	ND		0.010	0.0011	mg/L		04/28/21 14:00	04/30/21 21:52	1
Selenium	ND		0.0050	0.00089	mg/L		04/28/21 14:00	04/30/21 21:52	1
Thallium	ND		0.0010	0.00020	mg/L		04/28/21 14:00	04/30/21 21:52	1

Lab Sample ID: LCS 240-483223/3-A
Matrix: Water
Analysis Batch: 483693

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.104		mg/L		104	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-483223/3-A
Matrix: Water
Analysis Batch: 483693

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.971		mg/L		97	80 - 120
Barium	1.00	1.02		mg/L		102	80 - 120
Beryllium	0.500	0.490		mg/L		98	80 - 120
Cadmium	0.500	0.503		mg/L		101	80 - 120
Calcium	25.0	25.6		mg/L		103	80 - 120
Chromium	0.500	0.524		mg/L		105	80 - 120
Cobalt	0.500	0.505		mg/L		101	80 - 120
Lead	0.500	0.536		mg/L		107	80 - 120
Lithium	0.500	0.494		mg/L		99	80 - 120
Molybdenum	0.500	0.499		mg/L		100	80 - 120
Selenium	1.00	0.949		mg/L		95	80 - 120
Thallium	1.00	1.06		mg/L		106	80 - 120

Lab Sample ID: 280-147818-2 MS
Matrix: Water
Analysis Batch: 483693

Client Sample ID: MW-15
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0016	J	0.100	0.110		mg/L		109	75 - 125
Arsenic	0.0027	J	1.00	1.00		mg/L		100	75 - 125
Barium	0.031		1.00	1.03		mg/L		100	75 - 125
Beryllium	ND		0.500	0.506		mg/L		101	75 - 125
Cadmium	ND		0.500	0.495		mg/L		99	75 - 125
Calcium	170		25.0	188	4	mg/L		88	75 - 125
Chromium	0.0054		0.500	0.506		mg/L		100	75 - 125
Cobalt	0.0097		0.500	0.524		mg/L		103	75 - 125
Lead	ND		0.500	0.516		mg/L		103	75 - 125
Lithium	0.081		0.500	0.589		mg/L		102	75 - 125
Molybdenum	0.084		0.500	0.596		mg/L		102	75 - 125
Selenium	0.066		1.00	0.998		mg/L		93	75 - 125
Thallium	ND		1.00	1.02		mg/L		102	75 - 125

Lab Sample ID: 280-147818-2 MSD
Matrix: Water
Analysis Batch: 483693

Client Sample ID: MW-15
Prep Type: Total Recoverable
Prep Batch: 483223

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.0016	J	0.100	0.110		mg/L		109	75 - 125	0	20
Arsenic	0.0027	J	1.00	1.05		mg/L		104	75 - 125	5	20
Barium	0.031		1.00	1.09		mg/L		106	75 - 125	6	20
Beryllium	ND		0.500	0.516		mg/L		103	75 - 125	2	20
Cadmium	ND		0.500	0.516		mg/L		103	75 - 125	4	20
Calcium	170		25.0	191	4	mg/L		97	75 - 125	1	20
Chromium	0.0054		0.500	0.538		mg/L		106	75 - 125	6	20
Cobalt	0.0097		0.500	0.549		mg/L		108	75 - 125	5	20
Lead	ND		0.500	0.545		mg/L		109	75 - 125	5	20
Lithium	0.081		0.500	0.588		mg/L		101	75 - 125	0	20
Molybdenum	0.084		0.500	0.623		mg/L		108	75 - 125	4	20
Selenium	0.066		1.00	1.04		mg/L		98	75 - 125	4	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-147818-2 MSD — **Client Sample ID: MW-15**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 483693 — **Prep Batch: 483223**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thallium	ND		1.00	1.07		mg/L		107	75 - 125	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-483224/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 483586 — **Prep Batch: 483224**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/28/21 14:00	04/30/21 17:32	1

Lab Sample ID: LCS 240-483224/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 483586 — **Prep Batch: 483224**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.21		ug/L		104	80 - 120

Lab Sample ID: MB 240-483752/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484229 — **Prep Batch: 483752**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/03/21 14:00	05/05/21 10:03	1

Lab Sample ID: LCS 240-483752/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484229 — **Prep Batch: 483752**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.65		ug/L		113	80 - 120

Lab Sample ID: 280-147818-1 MS — **Client Sample ID: MW-13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484229 — **Prep Batch: 483752**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	F1	1.00	1.21	F1	ug/L		121	80 - 120

Lab Sample ID: 280-147818-1 MSD — **Client Sample ID: MW-13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484229 — **Prep Batch: 483752**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1	1.00	1.15		ug/L		115	80 - 120	5	20

Method: 9040B - pH

Lab Sample ID: LCS 280-534278/4
Matrix: Water
Analysis Batch: 534278

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Lab Sample ID: LCS 280-534411/4
Matrix: Water
Analysis Batch: 534411

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-536397/6
Matrix: Water
Analysis Batch: 536397

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/17/21 13:35	1
Fluoride	ND		0.50	0.17	mg/L			05/17/21 13:35	1
Sulfate	ND		5.0	1.0	mg/L			05/17/21 13:35	1

Lab Sample ID: LCS 280-536397/4
Matrix: Water
Analysis Batch: 536397

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.5		mg/L		99	90 - 110
Fluoride	5.00	4.94		mg/L		99	90 - 110
Sulfate	100	99.9		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-536397/5
Matrix: Water
Analysis Batch: 536397

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	98.6		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.99		mg/L		100	90 - 110	1	10
Sulfate	100	99.9		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-536397/3
Matrix: Water
Analysis Batch: 536397

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	4.11		mg/L		82	50 - 150
Fluoride	0.500	0.539		mg/L		108	50 - 150
Sulfate	5.00	4.52	J	mg/L		90	50 - 150

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

Lab Sample ID: MB 280-534218/1
Matrix: Water
Analysis Batch: 534218

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	4.7	mg/L			04/28/21 16:02	1

Lab Sample ID: LCS 280-534218/2
Matrix: Water
Analysis Batch: 534218

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	441		mg/L		88	88 - 114

Lab Sample ID: LCSD 280-534218/3
Matrix: Water
Analysis Batch: 534218

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	501		mg/L		100	88 - 114	13	20

Lab Sample ID: MB 280-534339/1
Matrix: Water
Analysis Batch: 534339

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	4.7	mg/L			04/29/21 12:11	1

Lab Sample ID: LCS 280-534339/2
Matrix: Water
Analysis Batch: 534339

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	488		mg/L		98	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-534086/1
Matrix: Water
Analysis Batch: 534086

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/27/21 16:32	1

Lab Sample ID: LCS 280-534086/2
Matrix: Water
Analysis Batch: 534086

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	81.2		mg/L		81	79 - 114

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: MB 280-534215/1
Matrix: Water
Analysis Batch: 534215

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/28/21 15:23	1

Lab Sample ID: LCS 280-534215/2
Matrix: Water
Analysis Batch: 534215

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	98.0		mg/L		98	79 - 114		

Lab Sample ID: LCSD 280-534215/3
Matrix: Water
Analysis Batch: 534215

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	109		mg/L		109	79 - 114	10	20

Lab Sample ID: 280-147818-4 DU
Matrix: Water
Analysis Batch: 534215

Client Sample ID: MW-10-FD
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	13			12.8		mg/L				3	10

Metals

Filtration Batch: 483221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-8	MW-7	Dissolved	Water	FILTRATION	

Prep Batch: 483223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total Recoverable	Water	3005A	
280-147818-2	MW-15	Total Recoverable	Water	3005A	
280-147818-3	MW-10	Total Recoverable	Water	3005A	
280-147818-4	MW-10-FD	Total Recoverable	Water	3005A	
280-147818-5	MW-10-EB	Total Recoverable	Water	3005A	
280-147818-6	MW-17	Total Recoverable	Water	3005A	
280-147818-7	MW-16	Total Recoverable	Water	3005A	
280-147818-8	MW-7	Dissolved	Water	3005A	483221
280-147818-8	MW-7	Total Recoverable	Water	3005A	
MB 240-483223/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-483223/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-483223/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-147818-1 MS	MW-13	Total Recoverable	Water	3005A	
280-147818-1 MSD	MW-13	Total Recoverable	Water	3005A	
280-147818-2 MS	MW-15	Total Recoverable	Water	3005A	
280-147818-2 MSD	MW-15	Total Recoverable	Water	3005A	

Prep Batch: 483224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-2	MW-15	Total/NA	Water	7470A	
280-147818-3	MW-10	Total/NA	Water	7470A	
280-147818-4	MW-10-FD	Total/NA	Water	7470A	
280-147818-5	MW-10-EB	Total/NA	Water	7470A	
280-147818-6	MW-17	Total/NA	Water	7470A	
280-147818-7	MW-16	Total/NA	Water	7470A	
280-147818-8	MW-7	Dissolved	Water	7470A	483221
280-147818-8	MW-7	Total/NA	Water	7470A	
MB 240-483224/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-483224/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 483541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total Recoverable	Water	6010C	483223
280-147818-2	MW-15	Total Recoverable	Water	6010C	483223
280-147818-3	MW-10	Total Recoverable	Water	6010C	483223
280-147818-4	MW-10-FD	Total Recoverable	Water	6010C	483223
280-147818-5	MW-10-EB	Total Recoverable	Water	6010C	483223
280-147818-6	MW-17	Total Recoverable	Water	6010C	483223
280-147818-7	MW-16	Total Recoverable	Water	6010C	483223
280-147818-8	MW-7	Dissolved	Water	6010C	483223
280-147818-8	MW-7	Total Recoverable	Water	6010C	483223
MB 240-483223/1-A	Method Blank	Total Recoverable	Water	6010C	483223
LCS 240-483223/2-A	Lab Control Sample	Total Recoverable	Water	6010C	483223
280-147818-1 MS	MW-13	Total Recoverable	Water	6010C	483223
280-147818-1 MSD	MW-13	Total Recoverable	Water	6010C	483223

Metals

Analysis Batch: 483586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-2	MW-15	Total/NA	Water	7470A	483224
280-147818-3	MW-10	Total/NA	Water	7470A	483224
280-147818-4	MW-10-FD	Total/NA	Water	7470A	483224
280-147818-5	MW-10-EB	Total/NA	Water	7470A	483224
280-147818-6	MW-17	Total/NA	Water	7470A	483224
280-147818-7	MW-16	Total/NA	Water	7470A	483224
280-147818-8	MW-7	Dissolved	Water	7470A	483224
280-147818-8	MW-7	Total/NA	Water	7470A	483224
MB 240-483224/1-A	Method Blank	Total/NA	Water	7470A	483224
LCS 240-483224/2-A	Lab Control Sample	Total/NA	Water	7470A	483224

Analysis Batch: 483693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total Recoverable	Water	6020A	483223
280-147818-2	MW-15	Total Recoverable	Water	6020A	483223
280-147818-3	MW-10	Total Recoverable	Water	6020A	483223
280-147818-4	MW-10-FD	Total Recoverable	Water	6020A	483223
280-147818-5	MW-10-EB	Total Recoverable	Water	6020A	483223
280-147818-6	MW-17	Total Recoverable	Water	6020A	483223
280-147818-7	MW-16	Total Recoverable	Water	6020A	483223
280-147818-8	MW-7	Dissolved	Water	6020A	483223
280-147818-8	MW-7	Total Recoverable	Water	6020A	483223
MB 240-483223/1-A	Method Blank	Total Recoverable	Water	6020A	483223
LCS 240-483223/3-A	Lab Control Sample	Total Recoverable	Water	6020A	483223
280-147818-2 MS	MW-15	Total Recoverable	Water	6020A	483223
280-147818-2 MSD	MW-15	Total Recoverable	Water	6020A	483223

Prep Batch: 483752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	7470A	
MB 240-483752/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-483752/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-147818-1 MS	MW-13	Total/NA	Water	7470A	
280-147818-1 MSD	MW-13	Total/NA	Water	7470A	

Analysis Batch: 484229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	7470A	483752
MB 240-483752/1-A	Method Blank	Total/NA	Water	7470A	483752
LCS 240-483752/2-A	Lab Control Sample	Total/NA	Water	7470A	483752
280-147818-1 MS	MW-13	Total/NA	Water	7470A	483752
280-147818-1 MSD	MW-13	Total/NA	Water	7470A	483752

General Chemistry

Analysis Batch: 534086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-5	MW-10-EB	Total/NA	Water	SM 2540D	
280-147818-6	MW-17	Total/NA	Water	SM 2540D	
280-147818-7	MW-16	Total/NA	Water	SM 2540D	
280-147818-8	MW-7	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 534086 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-534086/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-534086/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 534215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	SM 2540D	
280-147818-2	MW-15	Total/NA	Water	SM 2540D	
280-147818-3	MW-10	Total/NA	Water	SM 2540D	
280-147818-4	MW-10-FD	Total/NA	Water	SM 2540D	
MB 280-534215/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-534215/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-534215/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-147818-4 DU	MW-10-FD	Total/NA	Water	SM 2540D	

Analysis Batch: 534218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	SM 2540C	
MB 280-534218/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-534218/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-534218/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 534278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	9040B	
280-147818-2	MW-15	Total/NA	Water	9040B	
280-147818-3	MW-10	Total/NA	Water	9040B	
280-147818-4	MW-10-FD	Total/NA	Water	9040B	
280-147818-6	MW-17	Total/NA	Water	9040B	
280-147818-7	MW-16	Total/NA	Water	9040B	
280-147818-8	MW-7	Total/NA	Water	9040B	
LCS 280-534278/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 534339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-2	MW-15	Total/NA	Water	SM 2540C	
280-147818-3	MW-10	Total/NA	Water	SM 2540C	
280-147818-4	MW-10-FD	Total/NA	Water	SM 2540C	
280-147818-5	MW-10-EB	Total/NA	Water	SM 2540C	
280-147818-6	MW-17	Total/NA	Water	SM 2540C	
280-147818-7	MW-16	Total/NA	Water	SM 2540C	
280-147818-8	MW-7	Total/NA	Water	SM 2540C	
MB 280-534339/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-534339/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 534411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-5	MW-10-EB	Total/NA	Water	9040B	
LCS 280-534411/4	Lab Control Sample	Total/NA	Water	9040B	

QC Association Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

General Chemistry

Analysis Batch: 536397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	9056A	
280-147818-1	MW-13	Total/NA	Water	9056A	
280-147818-2	MW-15	Total/NA	Water	9056A	
280-147818-2	MW-15	Total/NA	Water	9056A	
280-147818-3	MW-10	Total/NA	Water	9056A	
280-147818-3	MW-10	Total/NA	Water	9056A	
280-147818-4	MW-10-FD	Total/NA	Water	9056A	
280-147818-4	MW-10-FD	Total/NA	Water	9056A	
280-147818-5	MW-10-EB	Total/NA	Water	9056A	
280-147818-6	MW-17	Total/NA	Water	9056A	
280-147818-6	MW-17	Total/NA	Water	9056A	
280-147818-7	MW-16	Total/NA	Water	9056A	
280-147818-7	MW-16	Total/NA	Water	9056A	
280-147818-8	MW-7	Total/NA	Water	9056A	
280-147818-8	MW-7	Total/NA	Water	9056A	
MB 280-536397/6	Method Blank	Total/NA	Water	9056A	
LCS 280-536397/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-536397/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-536397/3	Lab Control Sample	Total/NA	Water	9056A	

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-1
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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 18:50	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 21:57	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483752	05/03/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			484229	05/05/21 10:55	DTN	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 18:29	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 15:27	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	536397	05/17/21 15:41	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	534218	04/28/21 16:02	LEB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534215	04/28/21 15:23	LEB	TAL DEN

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-2
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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:19	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 21:59	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:42	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 18:45	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 15:56	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	536397	05/17/21 16:11	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534215	04/28/21 15:23	LEB	TAL DEN

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-3
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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:23	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:17	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:44	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 18:49	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 17:56	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	536397	05/17/21 18:11	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-10
Lab Sample ID: 280-147818-3
Date Collected: 04/22/21 12:10
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534215	04/28/21 15:23	LEB	TAL DEN

Client Sample ID: MW-10-FD
Lab Sample ID: 280-147818-4
Date Collected: 04/22/21 12:10
Matrix: Water
Date Received: 04/23/21 14:35

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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:28	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:19	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:51	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 18:52	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 18:26	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	536397	05/17/21 18:41	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534215	04/28/21 15:23	LEB	TAL DEN

Client Sample ID: MW-10-EB
Lab Sample ID: 280-147818-5
Date Collected: 04/22/21 13:00
Matrix: Water
Date Received: 04/23/21 14:35

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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:32	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:22	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:53	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534411	04/29/21 21:16	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 18:55	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534086	04/27/21 16:32	JMH	TAL DEN

Client Sample ID: MW-17
Lab Sample ID: 280-147818-6
Date Collected: 04/23/21 10:10
Matrix: Water
Date Received: 04/23/21 14:35

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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:37	KLC	TAL CAN

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-6
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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:24	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:55	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 19:03	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 21:04	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	536397	05/17/21 21:19	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534086	04/27/21 16:32	JMH	TAL DEN

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-7
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	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:41	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:27	DTN	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:57	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 19:07	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 21:34	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	536397	05/17/21 21:49	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	534086	04/27/21 16:32	JMH	TAL DEN

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	483221	04/28/21 12:00	MRL	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Dissolved	Analysis	6010C		1			483541	04/29/21 20:15	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			483541	04/29/21 19:54	KLC	TAL CAN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	483221	04/28/21 12:00	MRL	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Dissolved	Analysis	6020A		1			483693	04/30/21 22:59	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	483223	04/28/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			483693	04/30/21 22:29	DTN	TAL CAN

Lab Chronicle

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	483221	04/28/21 12:00	MRL	TAL CAN
Dissolved	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Dissolved	Analysis	7470A		1			483586	04/30/21 18:01	SLD	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	483224	04/28/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			483586	04/30/21 17:59	SLD	TAL CAN
Total/NA	Analysis	9040B		1			534278	04/28/21 19:11	QJB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	536397	05/17/21 22:04	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	536397	05/17/21 22:19	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	534339	04/29/21 12:11	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	50 mL	250 mL	534086	04/27/21 16:32	JMH	TAL DEN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-147818-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025-011	01-08-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9040B		Water	Temperature

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-22
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21 *
Kentucky (UST)	State	112225	02-23-21 *
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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

Chain of Custody Record

Denver #280 — eurofins | Environment Testing TestAmerica

Client Information	Sampler: Travis Snyder	Lab PM: Harrington, Danielle	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 720 838 6065	E-Mail: danielle.harrington@eurofinset.com		Page:
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): ASAP			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: molly.reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Colorado	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A - App III / App IV	9056A_28D - Anions (Chloride, Fluoride, Sulfate)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - Radium 226 and 228 combined	2540C_Calc - TDS	2540D - TSS	9040B - pH	Dissolved Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N	N	N	D		
MW-13	4/21/21	1325	G	W			X	X	X	X	X	X	X	9	*Sub Radchem to St. Louis / Metals to Canton
MW-15	4/22/21	0930	G	W			X	X	X	X	X	X	X	9	
MW-10	4/22/21	1210	G	W			X	X	X	X	X	X	X	9	
MW-10-FD	4/22/21	1210	G	W			X	X	X	X	X	X	X	9	
MW-10-EB	4/22/21	1300	G	W			X	X	X	X	X	X	X	9	
MW-17	4/23/21	1010	G	W			X	X	X	X	X	X	X	9	
MW-16	4/23/21	1140	G	W			X	X	X	X	X	X	X	9	
MW-7	4/23/21	1335	G	W			X	X	X	X	X	X	X	9	Needs lab filter of 1L unpreserved

280-147818 Chain of Custody

Preservation Codes:

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

Other:

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 4/23/21 1435	Company: HDR	Received by:	Date/Time: 4/23/2021 1435	Company: EA Pit.		
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:	4.4°C, 4.4°C, 3.4°C, 3.6°C IR#9 +0.2C			

Ver: 01/16/2019

5/19/2021

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

5-7/5-8 THS

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-565245.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-147818-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 5/13/2021			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A 13 T. Metals (w/collision cell)	6010C/3005A Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								541
MW-13 (280-147818-1)	4/21/21	13:25 Mountain		Water			X	X	X	4	Use Collision Cell
MW-15 (280-147818-2)	4/22/21	09:30 Mountain		Water			X	X	X	4	Use Collision Cell
MW-10 (280-147818-3)	4/22/21	12:10 Mountain		Water			X	X	X	4	Use Collision Cell
MW-10-FD (280-147818-4)	4/22/21	12:10 Mountain		Water			X	X	X	4	Use Collision Cell
MW-10-EB (280-147818-5)	4/22/21	13:00 Mountain		Water			X	X	X	4	Use Collision Cell
MW-17 (280-147818-6)	4/23/21	10:10 Mountain		Water			X	X	X	4	Use Collision Cell
MW-16 (280-147818-7)	4/23/21	11:40 Mountain		Water			X	X	X	4	Use Collision Cell
MW-7 (280-147818-8)	4/23/21	13:35 Mountain		Water			X	X	X	4	Use Collision Cell

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4/26/21 1305		[signature]	4-27-21 1810	[illegible]
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: 11/01/2020

5/19/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Site Name _____ Cooler unpacked by: Matt S

Cooler Received on 4-27-21 Opened on 4-27-21

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # LD Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp 5.7 °C Corrected Cooler Temp. 5.8 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	Yes	No
11. Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC022887
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	No
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

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

0-4/6.5

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-565339.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-147818-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/13/2021			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

C198

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A 13 T. Metals (w/collision cell)	6010C/3005A Boron	7470A/7470A_Prep Mercury	6020A/FILTRATION (MOD) 13 Metals	6010C/FILTRATION (MOD) Copy Analytes	7470A/FILTRATION Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:											
MW-7 (280-147818-8)	4/23/21	13:35 Mountain		Water			X	X	X	X	X	X	1	Use Collision Cell

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4/27/21 1330		[signature]	4-28-21/1440	ETA
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: 11/01/2020

Page 38 of 40

5/19/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Denver Site Name Xcel Energy Cooler unpacked by: DMS

Cooler Received on 4-28-21 Opened on 4-29-21 JJ

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 0.4 °C Corrected Cooler Temp. 0.5 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? (Yes) No DMS 4-29-21
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? (Yes) No
9. For each sample, does the COC specify preservatives (Y(N)) # of containers (Y)N), and sample type of grab/comp(Y(N))?
10. Were correct bottle(s) used for the test(s) indicated? (Yes) No
11. Sufficient quantity received to perform indicated analyses? (Yes) No
12. Are these work share samples and all listed on the COC? (Yes) No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC022887**
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____

_____

_____

_____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-147818-1

Login Number: 147818
List Number: 1
Creator: Levegood, William D

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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: 280-147818-2
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
5/25/2021 8:31:38 AM

Danielle Harrington, Project Manager II
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Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

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

Job ID: 280-147818-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-147818-2

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

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

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

RECEIPT
The samples were received on 04/23/2021; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 3.8º C, 4.8º C, 4.8º C and 5.0º C.

RADIUM-226 (GFPC)- Method 9315
The following samples were prepared at a reduced aliquot due to Matrix: MW-15 and MW-7.

The method 9315 MS/MSD could not be performed, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-228- Method 9320
The following samples were prepared at a reduced aliquot due to Matrix: MW-15 and MW-7.

The method 9320 MS/MSD could not be performed, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-226/RADIUM-228 (GFPC)
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-13 — Lab Sample ID: 280-147818-1

No Detections.

Client Sample ID: MW-15 — Lab Sample ID: 280-147818-2

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 280-147818-3

No Detections.

Client Sample ID: MW-10-FD — Lab Sample ID: 280-147818-4

No Detections.

Client Sample ID: MW-10-EB — Lab Sample ID: 280-147818-5

No Detections.

Client Sample ID: MW-17 — Lab Sample ID: 280-147818-6

No Detections.

Client Sample ID: MW-16 — Lab Sample ID: 280-147818-7

No Detections.

Client Sample ID: MW-7 — Lab Sample ID: 280-147818-8

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

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

Protocol References:

None = None

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

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

Laboratory References:

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

Sample Summary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-147818-1	MW-13	Water	04/21/21 13:25	04/23/21 14:35	
280-147818-2	MW-15	Water	04/22/21 09:30	04/23/21 14:35	
280-147818-3	MW-10	Water	04/22/21 12:10	04/23/21 14:35	
280-147818-4	MW-10-FD	Water	04/22/21 12:10	04/23/21 14:35	
280-147818-5	MW-10-EB	Water	04/22/21 13:00	04/23/21 14:35	
280-147818-6	MW-17	Water	04/23/21 10:10	04/23/21 14:35	
280-147818-7	MW-16	Water	04/23/21 11:40	04/23/21 14:35	
280-147818-8	MW-7	Water	04/23/21 13:35	04/23/21 14:35	

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.415**		0.163	0.168	1.00	0.174	pCi/L	04/30/21 09:15	05/24/21 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:46*	*1*

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0571	U	0.0832	0.0834	1.00	0.142	pCi/L	04/30/21 09:15	05/24/21 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:46*	*1*

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0825	U	0.0857	0.0860	1.00	0.136	pCi/L	04/30/21 09:15	05/24/21 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.1*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:46*	*1*

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0763	U	0.0847	0.0850	1.00	0.137	pCi/L	04/30/21 09:15	05/24/21 11:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.8*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:46*	*1*

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0188	U	0.0569	0.0570	1.00	0.130	pCi/L	04/30/21 09:15	05/24/21 11:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:48*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.177		0.101	0.102	1.00	0.130	pCi/L	04/30/21 09:15	05/24/21 11:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:48*	*1*

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0449	U	0.0737	0.0738	1.00	0.128	pCi/L	04/30/21 09:15	05/24/21 11:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.8*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:48*	*1*

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.235	U	0.202	0.204	1.00	0.307	pCi/L	04/30/21 09:15	05/24/21 11:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:48*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0425	U	0.299	0.299	1.00	0.530	pCi/L	04/30/21 09:58	05/19/21 13:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:36*	*1*
Y Carrier	*91.2*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:36*	*1*

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.155	U	0.196	0.196	1.00	0.325	pCi/L	04/30/21 09:58	05/19/21 13:36	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110	04/30/21 09:58	05/19/21 13:36	1
Y Carrier	89.0		40 - 110	04/30/21 09:58	05/19/21 13:36	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0270	U	0.166	0.166	1.00	0.312	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110	04/30/21 09:58	05/19/21 13:37	1
Y Carrier	89.0		40 - 110	04/30/21 09:58	05/19/21 13:37	1

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.381	U	0.249	0.251	1.00	0.384	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.8		40 - 110	04/30/21 09:58	05/19/21 13:37	1
Y Carrier	90.8		40 - 110	04/30/21 09:58	05/19/21 13:37	1

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0479	U	0.193	0.193	1.00	0.340	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110	04/30/21 09:58	05/19/21 13:37	1
Y Carrier	94.2		40 - 110	04/30/21 09:58	05/19/21 13:37	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.419**		0.238	0.241	1.00	0.353	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110	04/30/21 09:58	05/19/21 13:37	1
Y Carrier	90.8		40 - 110	04/30/21 09:58	05/19/21 13:37	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.472		0.241	0.245	1.00	0.351	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.8*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*
Y Carrier	*90.1*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.676	U	0.539	0.542	1.00	0.854	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*

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

Client Sample ID: MW-13
Date Collected: 04/21/21 13:25
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.458	U	0.341	0.343	5.00	0.530	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-15
Date Collected: 04/22/21 09:30
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.212	U	0.213	0.213	5.00	0.325	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-10
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35

Lab Sample ID: 280-147818-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0555	U	0.187	0.187	5.00	0.312	pCi/L		05/24/21 16:07	1

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

Client Sample ID: MW-10-FD
Date Collected: 04/22/21 12:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.458**		0.263	0.265	5.00	0.384	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-10-EB
Date Collected: 04/22/21 13:00
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0291	U	0.201	0.201	5.00	0.340	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-17
Date Collected: 04/23/21 10:10
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.596**		0.259	0.262	5.00	0.353	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-16
Date Collected: 04/23/21 11:40
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.517**		0.252	0.256	5.00	0.351	pCi/L		05/24/21 16:07	1

Client Sample ID: MW-7
Date Collected: 04/23/21 13:35
Date Received: 04/23/21 14:35
Lab Sample ID: 280-147818-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.912**		0.576	0.579	5.00	0.854	pCi/L		05/24/21 16:07	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-507835/23-A
Matrix: Water
Analysis Batch: 511401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 507835

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03151	U	0.0636	0.0636	1.00	0.116	pCi/L	04/30/21 09:15	05/24/21 11:48	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*04/30/21 09:15*	*05/24/21 11:48*	*1*

Lab Sample ID: LCS 160-507835/1-A
Matrix: Water
Analysis Batch: 511399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507835

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.97		1.16	1.00	0.139	pCi/L	97	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.2*		*40 - 110*

Lab Sample ID: LCSD 160-507835/2-A
Matrix: Water
Analysis Batch: 511399

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 507835

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.86		1.15	1.00	0.129	pCi/L	96	75 - 125	0.05	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*91.2*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-507838/23-A
Matrix: Water
Analysis Batch: 510517

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 507838

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05595	U	0.234	0.234	1.00	0.411	pCi/L	04/30/21 09:58	05/19/21 13:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*
Y Carrier	*91.2*		*40 - 110*	*04/30/21 09:58*	*05/19/21 13:37*	*1*

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

Lab Sample ID: LCS 160-507838/1-A
Matrix: Water
Analysis Batch: 510474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507838

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.71	8.976		1.05	1.00	0.371	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.2*		*40 - 110*
Y Carrier	*89.7*		*40 - 110*

Lab Sample ID: LCSD 160-507838/2-A
Matrix: Water
Analysis Batch: 510474

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 507838

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.71	8.027		0.971	1.00	0.368	pCi/L	83	75 - 125	0.47	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*91.2*		*40 - 110*
Y Carrier	*89.3*		*40 - 110*

Rad

Prep Batch: 507835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	PrecSep-21	
280-147818-2	MW-15	Total/NA	Water	PrecSep-21	
280-147818-3	MW-10	Total/NA	Water	PrecSep-21	
280-147818-4	MW-10-FD	Total/NA	Water	PrecSep-21	
280-147818-5	MW-10-EB	Total/NA	Water	PrecSep-21	
280-147818-6	MW-17	Total/NA	Water	PrecSep-21	
280-147818-7	MW-16	Total/NA	Water	PrecSep-21	
280-147818-8	MW-7	Total/NA	Water	PrecSep-21	
MB 160-507835/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-507835/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-507835/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 507838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-147818-1	MW-13	Total/NA	Water	PrecSep_0	
280-147818-2	MW-15	Total/NA	Water	PrecSep_0	
280-147818-3	MW-10	Total/NA	Water	PrecSep_0	
280-147818-4	MW-10-FD	Total/NA	Water	PrecSep_0	
280-147818-5	MW-10-EB	Total/NA	Water	PrecSep_0	
280-147818-6	MW-17	Total/NA	Water	PrecSep_0	
280-147818-7	MW-16	Total/NA	Water	PrecSep_0	
280-147818-8	MW-7	Total/NA	Water	PrecSep_0	
MB 160-507838/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-507838/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-507838/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-13
Lab Sample ID: 280-147818-1
Date Collected: 04/21/21 13:25
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.97 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511399	05/24/21 11:46	JCB	TAL SL
Total/NA	Prep	PrecSep_0			750.97 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:36	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-15
Lab Sample ID: 280-147818-2
Date Collected: 04/22/21 09:30
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.91 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511399	05/24/21 11:46	JCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.91 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:36	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-10
Lab Sample ID: 280-147818-3
Date Collected: 04/22/21 12:10
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.21 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511399	05/24/21 11:46	JCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.21 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-10-FD
Lab Sample ID: 280-147818-4
Date Collected: 04/22/21 12:10
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.96 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511399	05/24/21 11:46	JCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.96 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-10-EB
Lab Sample ID: 280-147818-5
Date Collected: 04/22/21 13:00
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.16 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511401	05/24/21 11:48	JCB	TAL SL
Total/NA	Prep	PrecSep_0			999.16 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-17
Lab Sample ID: 280-147818-6
Date Collected: 04/23/21 10:10
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.48 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511401	05/24/21 11:48	JCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.48 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-16
Lab Sample ID: 280-147818-7
Date Collected: 04/23/21 11:40
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511401	05/24/21 11:48	JCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Client Sample ID: MW-7
Lab Sample ID: 280-147818-8
Date Collected: 04/23/21 13:35
Matrix: Water
Date Received: 04/23/21 14:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.50 mL	1.0 g	507835	04/30/21 09:15	LAR	TAL SL
Total/NA	Analysis	9315		1			511401	05/24/21 11:48	JCB	TAL SL
Total/NA	Prep	PrecSep_0			500.50 mL	1.0 g	507838	04/30/21 09:58	LAR	TAL SL
Total/NA	Analysis	9320		1			510517	05/19/21 13:37	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			511413	05/24/21 16:07	FLC	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21 *
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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

Chain of Custody Record

Denver #280 — eurofins | Environment Testing TestAmerica

Client Information	Sampler: Travis Snyder	Lab PM: Harrington, Danielle	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 720 838 6065	E-Mail: danielle.harrington@eurofinset.com		Page:
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): ASAP			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: molly.reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, 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, 6020A, 7470A - App III / App IV	9056A_28D - Anions (Chloride, Fluoride, Sulfate)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - Radium 226 and 228 combined	2540C_Calc - TDS	2540D - TSS	9040B - pH	Dissolved Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N	N	N	D		
MW-13	4/21/21	1325	G	W			X	X	X	X	X	X	X	9	*Sub Radchem to St. Louis / Metals to Canton
MW-15	4/22/21	0930	G	W			X	X	X	X	X	X	X	9	
MW-10	4/22/21	1210	G	W			X	X	X	X	X	X	X	9	
MW-10-FD	4/22/21	1210	G	W			X	X	X	X	X	X	X	9	
MW-10-EB	4/22/21	1300	G	W			X	X	X	X	X	X	X	9	
MW-17	4/23/21	1010	G	W			X	X	X	X	X	X	X	9	
MW-16	4/23/21	1140	G	W			X	X	X	X	X	X	X	9	
MW-7	4/23/21	1335	G	W			X	X	X	X	X	X	X	9	Needs lab filter of 1L unpreserved

280-147818 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 4/23/21 1435	Company: HDR	Received by:	Date/Time: 4/23/2021 1435	Company: EA Pit.		
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: 4.4°C, 4.4°C, 3.4°C, 3.6°C IR#9 +0.2C-

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-565246.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-147818-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/14/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 - 1/3 - SUB	9320_Ra228/PrecSep_0 Radium-228 - 2/3 - SUB	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-13 (280-147818-1)	4/21/21	13:25 Mountain		Water			X	X	X	2	
MW-15 (280-147818-2)	4/22/21	09:30 Mountain		Water			X	X	X	2	
MW-10 (280-147818-3)	4/22/21	12:10 Mountain		Water			X	X	X	2	
MW-10-FD (280-147818-4)	4/22/21	12:10 Mountain		Water			X	X	X	2	
MW-10-EB (280-147818-5)	4/22/21	13:00 Mountain		Water			X	X	X	2	
MW-17 (280-147818-6)	4/23/21	10:10 Mountain		Water			X	X	X	2	
MW-16 (280-147818-7)	4/23/21	11:40 Mountain		Water			X	X	X	2	
MW-7 (280-147818-8)	4/23/21	13:35 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/26/21 1100		FED EX		
2	FED EX			[signature]	4/27/21 0920	ESA SRL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-147818-2

Login Number: 147818
List Number: 1
Creator: Levegood, William D

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-147818-2

Login Number: 147818
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/27/21 12:28 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-147818-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-147818-1	MW-13	87.3
280-147818-2	MW-15	91.5
280-147818-3	MW-10	92.1
280-147818-4	MW-10-FD	95.8
280-147818-5	MW-10-EB	90.0
280-147818-6	MW-17	91.5
280-147818-7	MW-16	94.8
280-147818-8	MW-7	87.6
LCS 160-507835/1-A	Lab Control Sample	95.2
LCSD 160-507835/2-A	Lab Control Sample Dup	91.2
MB 160-507835/23-A	Method Blank	87.6

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
280-147818-1	MW-13	87.3	91.2
280-147818-2	MW-15	91.5	89.0
280-147818-3	MW-10	92.1	89.0
280-147818-4	MW-10-FD	95.8	90.8
280-147818-5	MW-10-EB	90.0	94.2
280-147818-6	MW-17	91.5	90.8
280-147818-7	MW-16	94.8	90.1
280-147818-8	MW-7	87.6	89.7
LCS 160-507838/1-A	Lab Control Sample	95.2	89.7
LCSD 160-507838/2-A	Lab Control Sample Dup	91.2	89.3
MB 160-507838/23-A	Method Blank	87.6	91.2

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-149667-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
6/28/2021 8:45:11 AM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Metals

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.

General Chemistry

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
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: 280-149667-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-149667-1

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 06/10/2021; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 17.3 C, which is above the EPA's recommended temperature of 6C.
However, the sample is considered acceptable as it was received the same day as collection.

Please note, 1 of 2 500ml nitric containers has no label. Sample ID/date/time is written on lid of container. The sample was logged per the chain of custody.

Please note, the RAD analysis is reported under login 280-149667-2.

DISSOLVED METALS- Method 6010C/6020A

The accuracy and precision of the Boron MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium and Lithium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Thallium was detected in method blank MB 240-490510/1-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. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

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

DISSOLVED MERCURY

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 7470A Dissolved Mercury exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Job ID: 280-149667-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

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

GENERAL CHEMISTRY- VARIOUS
Sample MW-14 required a dilution or prepped at a dilution prior to various analysis. The reporting limits have been adjusted accordingly.

Please note that the recoveries, for the Chloride laboratory generated MS/MSD, are within QC limits; however, these are estimated values as the concentrations exceeded the calibration range. Method precision and accuracy has been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The continuing calibration verification (CCV) associated with batch 280-541068 recovered above the upper control limit for Fluoride. The samples associated with this CCV were non-detects for the affected analytes; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-14
Lab Sample ID: 280-149667-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.10	0.057	mg/L	1		6010C	Total Recoverable
Boron	1100		100	57	ug/L	1		6010C	Dissolved
Arsenic	0.0019	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.10		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	210		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.014		0.0020	0.0025	mg/L	1		6020A	Total Recoverable
Cobalt	0.0022		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.0041		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.080		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.021		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.011		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Arsenic	0.81	J	5.0	0.75	ug/L	1		6020A	Dissolved
Barium	43		5.0	2.2	ug/L	1		6020A	Dissolved
Calcium	210000		1000	580	ug/L	1		6020A	Dissolved
Cobalt	0.42	J	1.0	0.19	ug/L	1		6020A	Dissolved
Molybdenum	19		5.0	1.1	ug/L	1		6020A	Dissolved
Selenium	11		5.0	0.89	ug/L	1		6020A	Dissolved
Lithium	81		8.0	1.7	ug/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	420		60	20	mg/L	20		9056A	Total/NA
Sulfate	370		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	46		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
FILTRATION	Sample Filtration	None	TAL CAN

Protocol References:

None = None

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 CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Sample Summary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-149667-1	MW-14	Water	06/10/21 14:45	06/10/21 16:00	

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

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.0**		0.10	0.057	mg/L		06/14/21 14:00	06/15/21 14:19	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1100**		100	57	ug/L		06/14/21 14:00	06/15/21 14:36	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/14/21 14:00	06/17/21 22:15	1
Arsenic	**0.0019**	**J**	0.0050	0.00075	mg/L		06/14/21 14:00	06/17/21 22:15	1
Barium	**0.10**		0.0050	0.0022	mg/L		06/14/21 14:00	06/17/21 22:15	1
Beryllium	ND		0.0010	0.00062	mg/L		06/14/21 14:00	06/17/21 22:15	1
Cadmium	ND		0.0010	0.00020	mg/L		06/14/21 14:00	06/17/21 22:15	1
Calcium	**210**		1.0	0.58	mg/L		06/14/21 14:00	06/17/21 22:15	1
Chromium	**0.014**		0.0020	0.0025	mg/L		06/14/21 14:00	06/17/21 22:15	1
Cobalt	**0.0022**		0.0010	0.00019	mg/L		06/14/21 14:00	06/17/21 22:15	1
Lead	**0.0041**		0.0010	0.00045	mg/L		06/14/21 14:00	06/17/21 22:15	1
Lithium	**0.080**		0.0080	0.0017	mg/L		06/14/21 14:00	06/18/21 12:58	1
Molybdenum	**0.021**		0.010	0.0011	mg/L		06/14/21 14:00	06/17/21 22:15	1
Selenium	**0.011**		0.0050	0.00089	mg/L		06/14/21 14:00	06/17/21 22:15	1
Thallium	ND		0.0010	0.00020	mg/L		06/14/21 14:00	06/17/21 22:15	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.81**	**J**	5.0	0.75	ug/L		06/14/21 14:00	06/17/21 22:17	1
Barium	**43**		5.0	2.2	ug/L		06/14/21 14:00	06/17/21 22:17	1
Beryllium	ND		1.0	0.62	ug/L		06/14/21 14:00	06/17/21 22:17	1
Calcium	**210000**		1000	580	ug/L		06/14/21 14:00	06/17/21 22:17	1
Cadmium	ND		1.0	0.20	ug/L		06/14/21 14:00	06/17/21 22:17	1
Cobalt	**0.42**	**J**	1.0	0.19	ug/L		06/14/21 14:00	06/17/21 22:17	1
Chromium	ND		5.0	2.5	ug/L		06/14/21 14:00	06/17/21 22:17	1
Molybdenum	**19**		5.0	1.1	ug/L		06/14/21 14:00	06/17/21 22:17	1
Lead	ND		1.0	0.45	ug/L		06/14/21 14:00	06/17/21 22:17	1
Antimony	ND		2.0	0.57	ug/L		06/14/21 14:00	06/17/21 22:17	1
Selenium	**11**		5.0	0.89	ug/L		06/14/21 14:00	06/17/21 22:17	1
Lithium	**81**		8.0	1.7	ug/L		06/14/21 14:00	06/18/21 13:01	1
Thallium	ND		1.0	0.20	ug/L		06/14/21 14:00	06/17/21 22:17	1

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/14/21 14:00	06/15/21 12:13	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/14/21 14:00	06/15/21 12:19	1

General Chemistry

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00
Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.3**	**HF**	0.1	0.1	SU			06/14/21 13:47	1
Temperature	**20.9**	**HF**	1.0	1.0	Degrees C			06/14/21 13:47	1
Chloride	**420**		60	20	mg/L			06/25/21 00:30	20
Fluoride	ND	^+	10	3.3	mg/L			06/25/21 00:30	20
Sulfate	**370**		100	21	mg/L			06/25/21 23:45	20
Total Dissolved Solids (TDS)	**1600**		20	9.4	mg/L			06/17/21 09:52	1
Total Suspended Solids	**46**		4.0	1.1	mg/L			06/16/21 16:26	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-490510/1-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.057	mg/L		06/14/21 14:00	06/15/21 12:27	1

Lab Sample ID: LCS 240-490510/2-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.03		mg/L		103	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-490510/1-A
Matrix: Water
Analysis Batch: 491097

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		06/14/21 14:00	06/16/21 15:47	1
Barium	ND		0.0050	0.0022	mg/L		06/14/21 14:00	06/16/21 15:47	1
Beryllium	ND		0.0010	0.00062	mg/L		06/14/21 14:00	06/16/21 15:47	1
Cadmium	ND		0.0010	0.00020	mg/L		06/14/21 14:00	06/16/21 15:47	1
Calcium	ND		1.0	0.58	mg/L		06/14/21 14:00	06/16/21 15:47	1
Chromium	ND		0.0020	0.0025	mg/L		06/14/21 14:00	06/16/21 15:47	1
Cobalt	ND		0.0010	0.00019	mg/L		06/14/21 14:00	06/16/21 15:47	1
Lead	ND		0.0010	0.00045	mg/L		06/14/21 14:00	06/16/21 15:47	1
Antimony	ND		0.0020	0.00057	mg/L		06/14/21 14:00	06/16/21 15:47	1
Molybdenum	ND		0.010	0.0011	mg/L		06/14/21 14:00	06/16/21 15:47	1
Lithium	ND		0.0080	0.0017	mg/L		06/14/21 14:00	06/16/21 15:47	1
Selenium	ND		0.0050	0.00089	mg/L		06/14/21 14:00	06/16/21 15:47	1
Thallium	0.000599	J	0.0010	0.00020	mg/L		06/14/21 14:00	06/16/21 15:47	1

Lab Sample ID: MB 240-490510/1-A
Matrix: Water
Analysis Batch: 491290

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.0010	0.00020	mg/L		06/14/21 14:00	06/17/21 21:30	1

Lab Sample ID: LCS 240-490510/3-A
Matrix: Water
Analysis Batch: 491097

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.973		mg/L		97	80 - 120
Barium	1.00	0.990		mg/L		99	80 - 120
Beryllium	0.500	0.512		mg/L		102	80 - 120
Cadmium	0.500	0.491		mg/L		98	80 - 120
Calcium	25.0	24.7		mg/L		99	80 - 120
Chromium	0.500	0.502		mg/L		100	80 - 120
Cobalt	0.500	0.504		mg/L		101	80 - 120
Lead	0.500	0.512		mg/L		102	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-490510/3-A
Matrix: Water
Analysis Batch: 491097

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0989		mg/L		99	80 - 120
Molybdenum	0.500	0.492		mg/L		98	80 - 120
Lithium	0.500	0.494		mg/L		99	80 - 120
Selenium	1.00	0.989		mg/L		99	80 - 120
Thallium	1.00	1.04		mg/L		104	80 - 120

Lab Sample ID: LCS 240-490510/3-A
Matrix: Water
Analysis Batch: 491290

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 490510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thallium	1.00	0.930		mg/L		93	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-490511/1-A
Matrix: Water
Analysis Batch: 490863

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490511

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/14/21 14:00	06/15/21 11:23	1

Lab Sample ID: LCS 240-490511/2-A
Matrix: Water
Analysis Batch: 490863

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490511

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.07		ug/L		101	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-539809/4
Matrix: Water
Analysis Batch: 539809

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-541068/6
Matrix: Water
Analysis Batch: 541068

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			06/24/21 15:36	1
Fluoride	ND		0.50	0.17	mg/L			06/24/21 15:36	1
Sulfate	ND		5.0	1.0	mg/L			06/24/21 15:36	1

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

Lab Sample ID: LCS 280-541068/4
Matrix: Water
Analysis Batch: 541068

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.11		mg/L		102	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-541068/5
Matrix: Water
Analysis Batch: 541068

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	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.12		mg/L		102	90 - 110	0	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-541068/3
Matrix: Water
Analysis Batch: 541068

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	4.59		mg/L		92	50 - 150
Fluoride	0.500	0.457	J	mg/L		91	50 - 150
Sulfate	5.00	4.29	J	mg/L		86	50 - 150

Lab Sample ID: MB 280-541247/6
Matrix: Water
Analysis Batch: 541247

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			06/25/21 12:10	1

Lab Sample ID: LCS 280-541247/4
Matrix: Water
Analysis Batch: 541247

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-541247/5
Matrix: Water
Analysis Batch: 541247

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	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-541247/3
Matrix: Water
Analysis Batch: 541247

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.13	J	mg/L		83	50 - 150

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

Lab Sample ID: MB 280-540214/1
Matrix: Water
Analysis Batch: 540214

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	4.7	mg/L			06/17/21 09:52	1

Lab Sample ID: LCS 280-540214/2
Matrix: Water
Analysis Batch: 540214

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	502	480		mg/L		96	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-540121/2
Matrix: Water
Analysis Batch: 540121

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/16/21 16:26	1

Lab Sample ID: LCS 280-540121/1
Matrix: Water
Analysis Batch: 540121

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	94.0		mg/L		94	79 - 114

Metals

Filtration Batch: 490509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	FILTRATION	

Prep Batch: 490510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	3005A	490509
280-149667-1	MW-14	Total Recoverable	Water	3005A	
MB 240-490510/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-490510/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-490510/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 490511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	7470A	490509
280-149667-1	MW-14	Total/NA	Water	7470A	
MB 240-490511/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-490511/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 490849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	6010C	490510
280-149667-1	MW-14	Total Recoverable	Water	6010C	490510
MB 240-490510/1-A	Method Blank	Total Recoverable	Water	6010C	490510
LCS 240-490510/2-A	Lab Control Sample	Total Recoverable	Water	6010C	490510

Analysis Batch: 490863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	7470A	490511
280-149667-1	MW-14	Total/NA	Water	7470A	490511
MB 240-490511/1-A	Method Blank	Total/NA	Water	7470A	490511
LCS 240-490511/2-A	Lab Control Sample	Total/NA	Water	7470A	490511

Analysis Batch: 491097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-490510/1-A	Method Blank	Total Recoverable	Water	6020A	490510
LCS 240-490510/3-A	Lab Control Sample	Total Recoverable	Water	6020A	490510

Analysis Batch: 491290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	6020A	490510
280-149667-1	MW-14	Total Recoverable	Water	6020A	490510
MB 240-490510/1-A	Method Blank	Total Recoverable	Water	6020A	490510
LCS 240-490510/3-A	Lab Control Sample	Total Recoverable	Water	6020A	490510

Analysis Batch: 491521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Dissolved	Water	6020A	490510
280-149667-1	MW-14	Total Recoverable	Water	6020A	490510

QC Association Summary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

General Chemistry

Analysis Batch: 539809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	9040B	
LCS 280-539809/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 540121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	SM 2540D	
MB 280-540121/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-540121/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 540214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	SM 2540C	
MB 280-540214/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-540214/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 541068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	9056A	
MB 280-541068/6	Method Blank	Total/NA	Water	9056A	
LCS 280-541068/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-541068/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-541068/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 541247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	9056A	
MB 280-541247/6	Method Blank	Total/NA	Water	9056A	
LCS 280-541247/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-541247/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-541247/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00

Lab Sample ID: 280-149667-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	490509	06/14/21 12:20	MRL	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Dissolved	Analysis	6010C		1			490849	06/15/21 14:36	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			490849	06/15/21 14:19	KLC	TAL CAN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	490509	06/14/21 12:20	MRL	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Dissolved	Analysis	6020A		1			491290	06/17/21 22:17	DTN	TAL CAN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	490509	06/14/21 12:20	MRL	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Dissolved	Analysis	6020A		1			491521	06/18/21 13:01	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			491290	06/17/21 22:15	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	490510	06/14/21 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			491521	06/18/21 12:58	DTN	TAL CAN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	490509	06/14/21 12:20	MRL	TAL CAN
Dissolved	Prep	7470A			50 mL	50 mL	490511	06/14/21 14:00	MRL	TAL CAN
Dissolved	Analysis	7470A		1			490863	06/15/21 12:19	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	490511	06/14/21 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			490863	06/15/21 12:13	DSH	TAL CAN
Total/NA	Analysis	9040B		1			539809	06/14/21 13:47	QJB	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	541068	06/25/21 00:30	CJ	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	541247	06/25/21 23:45	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	540214	06/17/21 09:52	JMH	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	540121	06/16/21 16:26	SVC	TAL DEN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-149667-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025-011	01-08-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9040B		Water	Temperature

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-21
Iowa	State	421	06-01-21 *
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124-280 (0508)

Client: HDR Inc.	Project Manager: Molly Reeves	Date: 6/10/21	Chain of Custody Number: 194155
Address: 9781 S Meridian Blvd. Ste 400	Telephone Number (Area Code)/Fax Number: 734-263-7138	Lab Number:	Page _____ of _____
City: Englewood	State: CO	Zip Code: 80112	Site Contact: Travis Snyder	Lab Contact:
Project Name and Location (State): Xcel Cherokee (CO) CCR	Carrier/Waybill Number: 720838606S	
Contract/Purchase Order/Quote No.: DEN-018 (28014371)		

Analysis (Attach list if more space is needed): 6010C, 6020A, 7470A, App III/IV; 9056A_28D; 7315 Ra, 9320 Ra; 2540C TDS; 2540D TSS; 9040B pH; Diss. Metals

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis	Special Instructions
MW-14	6/10/21	1445		X			4		4				X X X X X X X	Sub Radchem to St. Louis/Metals to Canton Lab filter Diss. Metals

280-149667 Chain of Custody

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

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

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

1. Relinquished By	Date: 6/10/21	Time: 1600	1. Received By	Date: 6/10/21	Time: 1600
2. Relinquished By	Date:	Time:	2. Received By	Date:	Time:
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments: 16.9 CF+0.4 IR11

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

6/28/2021

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-572553.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-149667-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 6/30/2021			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S 83

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A 13 T. Metals (w/collision cell)	6010C/3005A Boron	7470A/7470A_Prep Mercury	6020A/FILTRATION (MOD) 13 Metals	6010C/FILTRATION (MOD) Copy Analytes	7470A/FILTRATION Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:											
MW-14 (280-149667-1)	6/10/21	14:45 Mountain		Water			X	X	X	X	X	X	2	Use Collision Cell

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Lisa Nielsen	6/11/21 1541	ETAD	[illegible]	6-12-21 1000	ETA
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:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Site Name _____ Cooler unpacked by: MaHS

Cooler Received on 6-12-21 Opened on 6-12-21

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # T0 Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.5 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9. For each sample, does the COC specify preservatives (Y/N) # of containers (Y/N), and sample type of grab/comp(Y/N)?	(Yes)	No
10. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11. Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC022887**
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

_____

_____

_____

_____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-149667-1

Login Number: 149667
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins TestAmerica, Denver

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

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ANALYTICAL REPORT

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

Laboratory Job ID: 280-149667-2
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
7/23/2021 7:28:53 AM

Danielle Harrington, Project Manager II
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Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

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

Job ID: 280-149667-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-149667-2

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

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

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

RECEIPT
The samples were received on 06/10/2021; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 17.3 C, which is above the EPA's recommended temperature of 6C. However, the samples are considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

RADIUM-226 (GFPC)- Method 9315
The following samples were prepared at a reduced aliquot due to Matrix: MW-14.

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

RADIUM-228- Method 9320
The following samples were prepared at a reduced aliquot due to Matrix: MW-14

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

RADIUM-226/RADIUM-228 (GFPC)
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-14
Lab Sample ID: 280-149667-1

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Method Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

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

Protocol References:

None = None

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

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

Laboratory References:

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

Sample Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-149667-1	MW-14	Water	06/10/21 14:45	06/10/21 16:00

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00

Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.500**		0.268	0.272	1.00	0.346	pCi/L	06/15/21 09:02	07/13/21 17:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*52.3*		*40 - 110*	*06/15/21 09:02*	*07/13/21 17:03*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00

Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.773	U G	0.828	0.831	1.00	1.36	pCi/L	06/15/21 10:14	07/01/21 09:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*52.3*		*40 - 110*	*06/15/21 10:14*	*07/01/21 09:28*	*1*
Y Carrier	*89.0*		*40 - 110*	*06/15/21 10:14*	*07/01/21 09:28*	*1*

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

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00

Lab Sample ID: 280-149667-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.27	U	0.870	0.874	5.00	1.36	pCi/L		07/22/21 12:09	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-514286/23-A
Matrix: Water
Analysis Batch: 518325

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 514286

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01798	U	0.0652	0.0652	1.00	0.123	pCi/L	06/15/21 09:02	07/13/21 17:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.3*		*40 - 110*	*06/15/21 09:02*	*07/13/21 17:02*	*1*

Lab Sample ID: LCS 160-514286/1-A
Matrix: Water
Analysis Batch: 518325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 514286

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.146		0.969	1.00	0.121	pCi/L	81	75 - 125		

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

Lab Sample ID: LCSD 160-514286/2-A
Matrix: Water
Analysis Batch: 518325

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 514286

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.447		1.00	1.00	0.118	pCi/L	83	75 - 125	0.15	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-514295/23-A
Matrix: Water
Analysis Batch: 516924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 514295

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06475	U	0.274	0.274	1.00	0.481	pCi/L	06/15/21 10:14	07/01/21 09:32	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.3*		*40 - 110*	*06/15/21 10:14*	*07/01/21 09:32*	*1*
Y Carrier	*84.9*		*40 - 110*	*06/15/21 10:14*	*07/01/21 09:32*	*1*

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

Lab Sample ID: LCS 160-514295/1-A
Matrix: Water
Analysis Batch: 516904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 514295

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.57	9.998		1.18	1.00	0.408	pCi/L	104	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.1*		*40 - 110*
Y Carrier	*83.0*		*40 - 110*

Lab Sample ID: LCSD 160-514295/2-A
Matrix: Water
Analysis Batch: 516918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 514295

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.57	10.09		1.19	1.00	0.454	pCi/L	105	75 - 125	0.04	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*
Y Carrier	*86.7*		*40 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Rad

Prep Batch: 514286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	PrecSep-21	
MB 160-514286/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-514286/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-514286/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 514295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-149667-1	MW-14	Total/NA	Water	PrecSep_0	
MB 160-514295/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-514295/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-514295/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-14
Date Collected: 06/10/21 14:45
Date Received: 06/10/21 16:00

Lab Sample ID: 280-149667-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			501.34 mL	1.0 g	514286	06/15/21 09:02	MJ	TAL SL
Total/NA	Analysis	9315		1			518324	07/13/21 17:03	SCB	TAL SL
Total/NA	Prep	PrecSep_0			501.34 mL	1.0 g	514295	06/15/21 10:14	MJ	TAL SL
Total/NA	Analysis	9320		1			516918	07/01/21 09:28	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			519746	07/22/21 12:09	SCB	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	06-30-21 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-21 *
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	07-01-22
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-21 *
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TAL-4124-280 (0508)

Chain of Custody Record

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Sampler ID ______

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

Client	HDR Inc.
Address	9781 S Meridian Blvd. Ste 400
City / State / Zip Code	Englewood / CO / 80112
Project Name and Location (State)	Xcel Cherokee (CO) CCR
Contract/Purchase Order/Quote No.	DEN-018 (28014371)
Project Manager	Molly Reeves
Telephone Number (Area Code)/Fax Number	734-263-7138
Site Contact	Travis Snyder
Lab Contact	
Carrier/Waybill Number	7208386065
Date	6/10/21
Lab Number	
Chain of Custody Number	194155
Page ___ of ___	

Analysis (Attach list if more space is needed): 6010C, 6020A, 7470A, App III/IV; 9056A_28D; 9315 Ra, 9320 Ra; 2540C TDS; 2540D TSS; 9040B pH; Diss. Metals

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	6010C, 6020A, 7470A, App III/IV	9056A_28D	9315 Ra, 9320 Ra	2540C TDS	2540D TSS	9040B pH	Diss. Metals	Special Instructions/ Conditions of Receipt
MW-14	6/10/21	1445		X			4		4				X	X	X	X	X	X	X	Sub Radchem to St. Louis / Metals to Canton; Lab filter Diss. Metals

280-149667 Chain of Custody

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By [signature]	6/10/21	1600	1. Received By [signature]	6/10/21	1600
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: 16.9 CF+0.4 IR11

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-572552.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-149667-2
Address: 13715 Rider Trail North, .	Due Date Requested: 7/11/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 - 1/3 - SUB	9320_Ra228/PrecSep_0 Radium-228 - 2/3 - SUB	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-14 (280-149667-1)	6/10/21	14:45 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	FED EX	06/11/2021 1425	ETHOEN	FED EX		
2	Relinquished by: FED EX	Date/Time:	Company	Received by:	Date/Time: 6/12/21 0825	Company ETA STL
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-149667-2

Login Number: 149667
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-149667-2

Login Number: 149667
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 06/12/21 12:52 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-149667-2
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-149667-1	MW-14	52.3
LCS 160-514286/1-A	Lab Control Sample	84.1
LCSD 160-514286/2-A	Lab Control Sample Dup	79.1
MB 160-514286/23-A	Method Blank	77.3

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
280-149667-1	MW-14	52.3	89.0
LCS 160-514295/1-A	Lab Control Sample	84.1	83.0
LCSD 160-514295/2-A	Lab Control Sample Dup	79.1	86.7
MB 160-514295/23-A	Method Blank	77.3	84.9

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-152997-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee
Revision: 1

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
10/28/2021 11:23:06 AM

Danielle Harrington, Project Manager II
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Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Metals

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: 280-152997-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-152997-1

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 09/15/2021; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.4 C.

DISSOLVED METALS (ICPMS)- METHOD 6020A
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS (ICPMS)- METHOD 6020A
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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

REVISION
Per client request 10/27/2021, MW-15 needs to also report Cobalt and MW-7 needs to also report Selenium.

Detection Summary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-15 — Lab Sample ID: 280-152997-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.056		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Cobalt	0.0042		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Selenium	52		5.0	0.89	ug/L	1		6020A	Dissolved
Cobalt	4.1		1.0	0.19	ug/L	1		6020A	Dissolved
Total Suspended Solids	27		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 280-152997-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.0027		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.0045		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0015	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Cobalt	1.7		1.0	0.19	ug/L	1		6020A	Dissolved
Total Suspended Solids	400		8.3	2.3	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CAN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
FILTRATION	Sample Filtration	None	TAL CAN

Protocol References:

None = None

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 CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Sample Summary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-152997-1	MW-15	Water	09/14/21 14:45	09/15/21 11:15
280-152997-2	MW-7	Water	09/15/21 09:30	09/15/21 11:15

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-15
Date Collected: 09/14/21 14:45
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	0.056		0.0050	0.00089	mg/L		09/20/21 14:00	09/21/21 23:26	1
Cobalt	0.0042		0.0010	0.00019	mg/L		09/20/21 14:00	09/21/21 23:26	1

Client Sample ID: MW-7
Date Collected: 09/15/21 09:30
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0027		0.0010	0.00019	mg/L		09/20/21 14:00	09/21/21 23:29	1
Lead	0.0045		0.0010	0.00045	mg/L		09/20/21 14:00	09/21/21 23:29	1
Selenium	0.0015	J	0.0050	0.00089	mg/L		09/20/21 14:00	09/21/21 23:29	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: MW-15
Date Collected: 09/14/21 14:45
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	52		5.0	0.89	ug/L		09/20/21 14:00	09/21/21 19:45	1
Cobalt	4.1		1.0	0.19	ug/L		09/20/21 14:00	09/21/21 19:45	1

Client Sample ID: MW-7
Date Collected: 09/15/21 09:30
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.7		1.0	0.19	ug/L		09/20/21 14:00	09/21/21 19:48	1
Lead	ND		1.0	0.45	ug/L		09/20/21 14:00	09/21/21 19:48	1
Selenium	ND		5.0	0.89	ug/L		09/20/21 14:00	09/21/21 19:48	1

General Chemistry

Client Sample ID: MW-15
Date Collected: 09/14/21 14:45
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	27		4.0	1.1	mg/L			09/15/21 19:05	1

Client Sample ID: MW-7
Date Collected: 09/15/21 09:30
Date Received: 09/15/21 11:15
Lab Sample ID: 280-152997-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	400		8.3	2.3	mg/L			09/15/21 19:05	1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-504478/1-A
Matrix: Water
Analysis Batch: 504786

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 504478

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.45	ug/L		09/20/21 14:00	09/21/21 18:33	1
Selenium	ND		5.0	0.89	ug/L		09/20/21 14:00	09/21/21 18:33	1
Cobalt	ND		1.0	0.19	ug/L		09/20/21 14:00	09/21/21 18:33	1

Lab Sample ID: LCS 240-504478/2-A
Matrix: Water
Analysis Batch: 504786

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 504478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	500	504		ug/L		101	80 - 120
Selenium	1000	922		ug/L		92	80 - 120
Cobalt	500	500		ug/L		100	80 - 120

Lab Sample ID: MB 240-504480/1-A
Matrix: Water
Analysis Batch: 504786

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 504480

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00045	mg/L		09/20/21 14:00	09/21/21 22:30	1
Selenium	ND		0.0050	0.00089	mg/L		09/20/21 14:00	09/21/21 22:30	1
Cobalt	ND		0.0010	0.00019	mg/L		09/20/21 14:00	09/21/21 22:30	1

Lab Sample ID: LCS 240-504480/2-A
Matrix: Water
Analysis Batch: 504786

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 504480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.504		mg/L		101	80 - 120
Selenium	1.00	0.925		mg/L		92	80 - 120
Cobalt	0.500	0.511		mg/L		102	80 - 120

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-549953/2
Matrix: Water
Analysis Batch: 549953

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			09/15/21 17:57	1

Lab Sample ID: LCS 280-549953/1
Matrix: Water
Analysis Batch: 549953

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	96.8		mg/L		97	79 - 114

QC Association Summary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Metals

Prep Batch: 504478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-152997-1	MW-15	Dissolved	Water	3005A	504479
280-152997-2	MW-7	Dissolved	Water	3005A	504479
MB 240-504478/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-504478/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 504479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-152997-1	MW-15	Dissolved	Water	FILTRATION	
280-152997-2	MW-7	Dissolved	Water	FILTRATION	

Prep Batch: 504480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-152997-1	MW-15	Total Recoverable	Water	3005A	
280-152997-2	MW-7	Total Recoverable	Water	3005A	
MB 240-504480/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-504480/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 504786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-152997-1	MW-15	Dissolved	Water	6020A	504478
280-152997-1	MW-15	Total Recoverable	Water	6020A	504480
280-152997-2	MW-7	Dissolved	Water	6020A	504478
280-152997-2	MW-7	Total Recoverable	Water	6020A	504480
MB 240-504478/1-A	Method Blank	Total Recoverable	Water	6020A	504478
MB 240-504480/1-A	Method Blank	Total Recoverable	Water	6020A	504480
LCS 240-504478/2-A	Lab Control Sample	Total Recoverable	Water	6020A	504478
LCS 240-504480/2-A	Lab Control Sample	Total Recoverable	Water	6020A	504480

General Chemistry

Analysis Batch: 549953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-152997-1	MW-15	Total/NA	Water	SM 2540D	
280-152997-2	MW-7	Total/NA	Water	SM 2540D	
MB 280-549953/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-549953/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-15
Lab Sample ID: 280-152997-1
Date Collected: 09/14/21 14:45
Matrix: Water
Date Received: 09/15/21 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	504479	09/20/21 13:10	SHB	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	504478	09/20/21 14:00	SHB	TAL CAN
Dissolved	Analysis	6020A		1			504786	09/21/21 19:45	AJC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	504480	09/20/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			504786	09/21/21 23:26	AJC	TAL CAN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	549953	09/15/21 19:05	SVC	TAL DEN

Client Sample ID: MW-7
Lab Sample ID: 280-152997-2
Date Collected: 09/15/21 09:30
Matrix: Water
Date Received: 09/15/21 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	504479	09/20/21 13:10	SHB	TAL CAN
Dissolved	Prep	3005A			50 mL	50 mL	504478	09/20/21 14:00	SHB	TAL CAN
Dissolved	Analysis	6020A		1			504786	09/21/21 19:48	AJC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	504480	09/20/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			504786	09/21/21 23:29	AJC	TAL CAN
Total/NA	Analysis	SM 2540D		1	120 mL	250 mL	549953	09/15/21 19:05	SVC	TAL DEN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-152997-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025-011	01-08-22

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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

Chain of Custody Record

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Client Information	Sampler: Travis Snyder	Lab PM: Bandy Darlene F	Carrier Tracking No(s):	COC No:
Client Contact: Anna Lundin	Phone: 720 838 6065	E-Mail: darlene.bandy@testamericainc.com		Page:
Company: HDR Inc		Analysis Requested		Job #:

Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:		
City: Englewood	TAT Requested (days): ASAP		
State, Zip: CO, 80112			
Phone: 734-263-7138(Tel)	PO #: DEN-018		
Email: anna.lundin@hdrinc.com	WO #:		
Project Name: Xcel Energy GW CCR Monitoring Cherokee	Project #: 28014371		
Site: Colorado	SSOW#:		

Preservation Codes:

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

Other

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A App III / App IV	9056A_28D Anions (Chloride, Fluoride, Sulfate)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC Radium 226 and 228 combined	2540C_Calc TDS	2540D TSS	9040B pH	Dissolved Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	D	N	N	N	N	X	Selenium/TSS only
MW-15	9/14/21	1445	G	W	N		X				X		X	3	*Sub Radchem to St. Louis / Metals to Canton
MW-7	9/15/21	0930	G	W	Y		X				X		X	3	Diss. metals filtered 500 mL unpreserved Pb/Cobalt/TSS only

280-152997 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II III IV Other (specify)	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		9/15/21 1110	HDR		9/15/21 1115	ETADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 3.4 CF +1.0 IR#11

Ver 01/16/2019

4.7/4.8

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

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-585162.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-152997-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/14/2021			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Preservation Codes:

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

Other:

S72 W03

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 T. Metals (w/collision cell)	6020A/FILTRATION (MOD) 12 Metals	6020A/FILTRATION (MOD) 13 Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-15 (280-152997-1)	9/14/21	14:45 Mountain		Water			X	X		2	Use Collision Cell
MW-7 (280-152997-2)	9/15/21	09:30 Mountain		Water			X		X	2	Use Collision Cell

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time: 9-16-21 1253	Company: ETAUEN	Received by:	Date/Time: 9-17-21 1025	Company: ETA	
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:			

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10/28/2021 (Rev. 1)

Ver: 06/08/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : _____

Client ETA Site Name _____

Cooler unpacked by: Matt

Cooler Received on 9-17-21 Opened on 9-17-21

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 4.7 °C Corrected Cooler Temp. 4.3 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	Yes	No
11. Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC157842
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	No
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-152997-1

Login Number: 152997
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.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-154472-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
11/22/2021 10:16:25 AM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Qualifiers

Metals

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.

General Chemistry

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

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

Job ID: 280-154472-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-154472-1

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.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

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

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

RECEIPT
The samples were received on 10/21/2021; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 1.9°C, 2.6°C and 3.2°C.

TOTAL RECOVERABLE METALS- METHOD 6010C/ 6020A
The accuracy and precision of the Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

TOTAL MERCURY- METHOD 7470A
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GENERAL CHEMISTRY- VARIOUS
Several samples required dilution prior to analysis due to matrix interferences or high analyte concentrations for various analyses. The reporting limits have been adjusted accordingly.

The pH sample duplicate analysis data for sample MW-10 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Method 9040B: The initial calibration verification (ICV) result for batch 280-554951 was above the upper control limit. However The ICV buffer within ± 0.05 pH units. Sample results have been reported as qualified data.

MS/MSD analyses were performed on sample MW-13EB. The MS/MSD for Sulfate method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Job ID: 280-154472-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

RADIUM-226 (GFPC)- METHOD 9315
The following samples were prepared at a reduced aliquot due to Matrix: MW-10 (280-154472-1) and MW-14 (280-154472-4).

The method 9315 MS/MSD could not be performed, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-228- METHOD 9320
The following samples were prepared at a reduced aliquot due to Matrix: MW-10 (280-154472-1) and MW-14 (280-154472-4).

Radium-228 was detected in method blank MB 160-533889/23-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

The method 9320 MS/MSD could not be performed, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-226/RADIUM-228 (GFPC)
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-10 — Lab Sample ID: 280-154472-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.9		0.10	0.057	mg/L	1		6010C	Total Recoverable
Arsenic	0.00097	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.059		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	260		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0032		0.0025	0.0025	mg/L	1		6020A	Total Recoverable
Cobalt	0.0054		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.073		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.069		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.078		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	420		60	20	mg/L	20		9056A	Total/NA
Fluoride	2.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	990		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2100		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	13		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 280-154472-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.55		0.10	0.057	mg/L	1		6010C	Total Recoverable
Barium	0.083		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00041	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.039		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0030	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0074		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.95		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	290		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-13EB — Lab Sample ID: 280-154472-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.3	HF ^1+	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Client Sample ID: MW-13EB (Continued) — Lab Sample ID: 280-154472-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 280-154472-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.92		0.10	0.057	mg/L	1		6010C	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.048		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Cadmium	0.00020	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	180		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00098	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.00070	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.074		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.022		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0047	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	330		60	20	mg/L	20		9056A	Total/NA
Fluoride	1.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	330		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	84		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 280-154472-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.7		0.10	0.057	mg/L	1		6010C	Total Recoverable
Antimony	0.0014	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0021	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.037		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	190		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0069		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.087		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.048		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.059		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	330		60	20	mg/L	20		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-15 (Continued) — Lab Sample ID: 280-154472-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	540		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 280-154472-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.49		0.10	0.057	mg/L	1		6010C	Total Recoverable
Arsenic	0.0025	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.050		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00046	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.059		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.011		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0068		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	300		60	20	mg/L	20		9056A	Total/NA
Fluoride	1.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	470		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-16D — Lab Sample ID: 280-154472-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.50		0.10	0.057	mg/L	1		6010C	Total Recoverable
Arsenic	0.0027	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.050		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00045	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.060		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.010		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0069		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	300		60	20	mg/L	20		9056A	Total/NA
Fluoride	1.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	470		100	21	mg/L	20		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-16D (Continued)
Lab Sample ID: 280-154472-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
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.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-154472-1	MW-10	Water	10/19/21 15:30	10/21/21 09:34
280-154472-2	MW-13	Water	10/20/21 10:15	10/21/21 09:34
280-154472-3	MW-13EB	Water	10/20/21 10:40	10/21/21 09:34
280-154472-4	MW-14	Water	10/20/21 11:50	10/21/21 09:34
280-154472-5	MW-15	Water	10/19/21 14:05	10/21/21 09:34
280-154472-6	MW-16	Water	10/19/21 10:35	10/21/21 09:34
280-154472-7	MW-16D	Water	10/19/21 10:35	10/21/21 09:34

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

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.9**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:25	1

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.55**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:30	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:42	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.92**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:47	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.7**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:51	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.49**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 14:55	1

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.50**		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 15:00	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:09	1
Arsenic	**0.00097**	**J**	0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:09	1
Barium	**0.059**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:09	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:09	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:09	1
Calcium	**260**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:09	1
Chromium	**0.0032**		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:09	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	**0.0054**		0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:09	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:09	1
Lithium	**0.073**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:09	1
Molybdenum	**0.069**		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:09	1
Selenium	**0.078**		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:09	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:09	1

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:11	1
Arsenic	ND		0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:11	1
Barium	**0.083**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:11	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:11	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:11	1
Calcium	**130**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:11	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:11	1
Cobalt	**0.00041**	**J**	0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:11	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:11	1
Lithium	**0.039**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:11	1
Molybdenum	**0.0030**	**J**	0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:11	1
Selenium	**0.0074**		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:11	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:11	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:14	1
Arsenic	ND		0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:14	1
Barium	ND		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:14	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:14	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:14	1
Calcium	ND		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:14	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:14	1
Cobalt	ND		0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:14	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:14	1
Lithium	ND		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:14	1
Molybdenum	ND		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:14	1
Selenium	ND		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:14	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:14	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:16	1
Arsenic	**0.0012**	**J**	0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:16	1
Barium	**0.048**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:16	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:16	1
Cadmium	**0.00020**	**J**	0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:16	1
Calcium	**180**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:16	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:16	1
Cobalt	**0.00098**	**J**	0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:16	1
Lead	**0.00070**	**J**	0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:16	1
Lithium	**0.074**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:16	1
Molybdenum	**0.022**		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:16	1
Selenium	**0.0047**	**J**	0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:16	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:16	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0014**	**J**	0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:19	1
Arsenic	**0.0021**	**J**	0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:19	1
Barium	**0.037**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:19	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:19	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:19	1
Calcium	**190**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:19	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:19	1
Cobalt	**0.0069**		0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:19	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:19	1
Lithium	**0.087**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:19	1
Molybdenum	**0.048**		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:19	1
Selenium	**0.059**		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:19	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:19	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:21	1
Arsenic	**0.0025**	**J**	0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:21	1
Barium	**0.050**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:21	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:21	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:21	1
Calcium	**130**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:21	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:21	1
Cobalt	**0.00046**	**J**	0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:21	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:21	1
Lithium	**0.059**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:21	1
Molybdenum	**0.011**		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:21	1
Selenium	**0.0068**		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:21	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:21	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 15:24	1
Arsenic	**0.0027**	**J**	0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 15:24	1
Barium	**0.050**		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 15:24	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 15:24	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:24	1
Calcium	**130**		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 15:24	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 15:24	1
Cobalt	**0.00045**	**J**	0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 15:24	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 15:24	1
Lithium	**0.060**		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 15:24	1
Molybdenum	**0.010**		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 15:24	1
Selenium	**0.0069**		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 15:24	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 15:24	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:46	1

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:48	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:50	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:52	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:54	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:56	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 14:58	1

General Chemistry

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.1**	**HF**	0.1	0.1	SU			10/22/21 15:52	1
Temperature	**21.2**	**HF**	1.0	1.0	Degrees C			10/22/21 15:52	1
Chloride	**420**		60	20	mg/L			11/16/21 00:12	20
Fluoride	**2.1**		0.50	0.17	mg/L			11/15/21 22:47	1
Sulfate	**990**		100	21	mg/L			11/16/21 00:12	20
Total Dissolved Solids (TDS)	**2100**		20	9.4	mg/L			10/25/21 16:20	1
Total Suspended Solids	**13**		4.0	1.1	mg/L			10/22/21 09:21	1

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.6**	**HF**	0.1	0.1	SU			10/22/21 15:59	1
Temperature	**20.6**	**HF**	1.0	1.0	Degrees C			10/22/21 15:59	1
Chloride	**180**		3.0	1.0	mg/L			11/17/21 02:19	1
Fluoride	**0.95**		0.50	0.17	mg/L			11/17/21 02:19	1
Sulfate	**290**		50	10	mg/L			11/17/21 02:33	10
Total Dissolved Solids (TDS)	**1000**		10	4.7	mg/L			10/26/21 10:12	1
Total Suspended Solids	**2.8**	**J**	4.0	1.1	mg/L			10/22/21 09:21	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**8.3**	**HF ^1+**	0.1	0.1	SU			10/23/21 18:45	1
Temperature	**18.6**	**HF**	1.0	1.0	Degrees C			10/23/21 18:45	1
Chloride	ND		3.0	1.0	mg/L			11/17/21 02:47	1
Fluoride	ND		0.50	0.17	mg/L			11/17/21 02:47	1
Sulfate	ND	F1	5.0	1.0	mg/L			11/17/21 02:47	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/26/21 10:12	1
Total Suspended Solids	**2.0**	**J**	4.0	1.1	mg/L			10/22/21 09:21	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.1**	**HF**	0.1	0.1	SU			10/22/21 16:09	1
Temperature	**20.3**	**HF**	1.0	1.0	Degrees C			10/22/21 16:09	1
Chloride	**330**		60	20	mg/L			11/17/21 05:21	20
Fluoride	**1.7**		0.50	0.17	mg/L			11/17/21 05:07	1
Sulfate	**330**		100	21	mg/L			11/17/21 05:21	20
Total Dissolved Solids (TDS)	**1400**		20	9.4	mg/L			10/26/21 10:12	1
Total Suspended Solids	**84**		4.0	1.1	mg/L			10/22/21 09:21	1

General Chemistry

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			10/22/21 16:14	1
Temperature	20.3	HF	1.0	1.0	Degrees C			10/22/21 16:14	1
Chloride	330		60	20	mg/L			11/15/21 18:35	20
Fluoride	1.7		0.50	0.17	mg/L			11/15/21 18:21	1
Sulfate	540		100	21	mg/L			11/15/21 18:35	20
Total Dissolved Solids (TDS)	1600		20	9.4	mg/L			10/26/21 10:12	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			10/22/21 09:21	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			10/22/21 16:18	1
Temperature	20.5	HF	1.0	1.0	Degrees C			10/22/21 16:18	1
Chloride	300		60	20	mg/L			11/16/21 02:04	20
Fluoride	1.7		0.50	0.17	mg/L			11/16/21 01:50	1
Sulfate	470		100	21	mg/L			11/16/21 02:04	20
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L			10/26/21 10:12	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			10/22/21 09:21	1

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			10/22/21 16:21	1
Temperature	20.5	HF	1.0	1.0	Degrees C			10/22/21 16:21	1
Chloride	300		60	20	mg/L			11/15/21 19:31	20
Fluoride	1.7		0.50	0.17	mg/L			11/15/21 19:17	1
Sulfate	470		100	21	mg/L			11/15/21 19:31	20
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L			10/26/21 10:10	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			10/22/21 09:21	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.917		0.480	0.487	1.00	0.602	pCi/L	10/27/21 14:28	11/18/21 09:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*52.3*		*40 - 110*	*10/27/21 14:28*	*11/18/21 09:46*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.798		0.333	0.341	1.00	0.386	pCi/L	10/27/21 14:28	11/18/21 09:46	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.5		40 - 110	10/27/21 14:28	11/18/21 09:46	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.494		0.233	0.237	1.00	0.274	pCi/L	10/27/21 14:28	11/18/21 09:47	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110	10/27/21 14:28	11/18/21 09:47	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.28		0.626	0.636	1.00	0.733	pCi/L	10/27/21 14:28	11/18/21 09:47	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	58.3		40 - 110	10/27/21 14:28	11/18/21 09:47	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.362		0.195	0.198	1.00	0.244	pCi/L	10/27/21 14:28	11/18/21 09:48	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	10/27/21 14:28	11/18/21 09:48	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.485		0.220	0.224	1.00	0.254	pCi/L	10/27/21 14:28	11/18/21 09:48	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	10/27/21 14:28	11/18/21 09:48	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.172	U	0.185	0.185	1.00	0.297	pCi/L	10/27/21 14:28	11/18/21 11:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*10/27/21 14:28*	*11/18/21 11:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.558	U	0.516	0.518	1.00	0.828	pCi/L	10/27/21 15:00	11/17/21 16:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*52.3*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:53*	*1*
Y Carrier	*91.2*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:53*	*1*

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.252	U	0.313	0.314	1.00	0.518	pCi/L	10/27/21 15:00	11/17/21 16:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.5*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:54*	*1*
Y Carrier	*92.7*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:54*	*1*

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.159	U	0.219	0.220	1.00	0.366	pCi/L	10/27/21 15:00	11/17/21 16:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:54*	*1*
Y Carrier	*91.6*		*40 - 110*	*10/27/21 15:00*	*11/17/21 16:54*	*1*

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.502	U G	0.711	0.713	1.00	1.19	pCi/L	10/27/21 15:00	11/17/21 16:54	1

Method: 9320 - Radium-228 (GFPC)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	58.3		40 - 110	10/27/21 15:00	11/17/21 16:54	1
Y Carrier	91.2		40 - 110	10/27/21 15:00	11/17/21 16:54	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.615		0.257	0.263	1.00	0.364	pCi/L	10/27/21 15:00	11/17/21 17:05	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	10/27/21 15:00	11/17/21 17:05	1
Y Carrier	91.6		40 - 110	10/27/21 15:00	11/17/21 17:05	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.05		0.279	0.295	1.00	0.339	pCi/L	10/27/21 15:00	11/17/21 17:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	10/27/21 15:00	11/17/21 17:06	1
Y Carrier	91.6		40 - 110	10/27/21 15:00	11/17/21 17:06	1

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.788		0.272	0.282	1.00	0.366	pCi/L	10/27/21 15:00	11/17/21 17:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	10/27/21 15:00	11/17/21 17:07	1
Y Carrier	92.7		40 - 110	10/27/21 15:00	11/17/21 17:07	1

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

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.47		0.705	0.711	5.00	0.828	pCi/L		11/18/21 18:49	1

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

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.05		0.457	0.464	5.00	0.518	pCi/L		11/18/21 18:49	1

Client Sample ID: MW-13EB
Date Collected: 10/20/21 10:40
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.653		0.320	0.323	5.00	0.366	pCi/L		11/18/21 18:49	1

Client Sample ID: MW-14
Date Collected: 10/20/21 11:50
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.78		0.947	0.955	5.00	1.19	pCi/L		11/18/21 18:49	1

Client Sample ID: MW-15
Date Collected: 10/19/21 14:05
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.977		0.323	0.329	5.00	0.364	pCi/L		11/18/21 18:49	1

Client Sample ID: MW-16
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.53		0.355	0.370	5.00	0.339	pCi/L		11/18/21 18:50	1

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34
Lab Sample ID: 280-154472-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.961		0.329	0.337	5.00	0.366	pCi/L		11/18/21 18:50	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-510507/1-A
Matrix: Water
Analysis Batch: 511035

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 510507

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.057	mg/L		10/29/21 14:00	11/02/21 12:40	1

Lab Sample ID: LCS 240-510507/2-A
Matrix: Water
Analysis Batch: 511035

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 510507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.946		mg/L		95	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-510507/1-A
Matrix: Water
Analysis Batch: 510947

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 510507

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/29/21 14:00	11/01/21 14:34	1
Arsenic	ND		0.0050	0.00075	mg/L		10/29/21 14:00	11/01/21 14:34	1
Barium	ND		0.0050	0.0022	mg/L		10/29/21 14:00	11/01/21 14:34	1
Beryllium	ND		0.0010	0.00062	mg/L		10/29/21 14:00	11/01/21 14:34	1
Cadmium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 14:34	1
Calcium	ND		1.0	0.58	mg/L		10/29/21 14:00	11/01/21 14:34	1
Chromium	ND		0.0025	0.0025	mg/L		10/29/21 14:00	11/01/21 14:34	1
Cobalt	ND		0.0010	0.00019	mg/L		10/29/21 14:00	11/01/21 14:34	1
Lead	ND		0.0010	0.00045	mg/L		10/29/21 14:00	11/01/21 14:34	1
Lithium	ND		0.0080	0.0017	mg/L		10/29/21 14:00	11/01/21 14:34	1
Molybdenum	ND		0.010	0.0011	mg/L		10/29/21 14:00	11/01/21 14:34	1
Selenium	ND		0.0050	0.00089	mg/L		10/29/21 14:00	11/01/21 14:34	1
Thallium	ND		0.0010	0.00020	mg/L		10/29/21 14:00	11/01/21 14:34	1

Lab Sample ID: LCS 240-510507/3-A
Matrix: Water
Analysis Batch: 510947

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 510507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.107		mg/L		107	80 - 120
Arsenic	1.00	0.990		mg/L		99	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	0.500	0.493		mg/L		99	80 - 120
Cadmium	0.500	0.514		mg/L		103	80 - 120
Calcium	25.0	25.2		mg/L		101	80 - 120
Chromium	0.500	0.521		mg/L		104	80 - 120
Cobalt	0.500	0.525		mg/L		105	80 - 120
Lead	0.500	0.538		mg/L		108	80 - 120
Lithium	0.500	0.510		mg/L		102	80 - 120
Molybdenum	0.500	0.517		mg/L		103	80 - 120
Selenium	1.00	0.945		mg/L		94	80 - 120
Thallium	1.00	1.05		mg/L		105	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-510509/1-A
Matrix: Water
Analysis Batch: 510861

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510509

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		10/29/21 14:00	11/01/21 13:59	1

Lab Sample ID: LCS 240-510509/2-A
Matrix: Water
Analysis Batch: 510861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510509

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.22		ug/L		104	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-554752/4
Matrix: Water
Analysis Batch: 554752

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Lab Sample ID: 280-154472-1 DU
Matrix: Water
Analysis Batch: 554752

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.1	HF	7.9	F3	SU		11	5
Temperature	21.2	HF	20.9		Degrees C		1	10

Lab Sample ID: LCS 280-554951/4
Matrix: Water
Analysis Batch: 554951

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.0	^1+	SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-557415/13
Matrix: Water
Analysis Batch: 557415

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/14/21 19:17	1
Fluoride	ND		0.50	0.17	mg/L			11/14/21 19:17	1
Sulfate	ND		5.0	1.0	mg/L			11/14/21 19:17	1

Lab Sample ID: MB 280-557415/63
Matrix: Water
Analysis Batch: 557415

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/15/21 21:09	1

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

Lab Sample ID: MB 280-557415/63
Matrix: Water
Analysis Batch: 557415

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			11/15/21 21:09	1
Sulfate	ND		5.0	1.0	mg/L			11/15/21 21:09	1

Lab Sample ID: LCS 280-557415/11
Matrix: Water
Analysis Batch: 557415

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.20		mg/L		104	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCS 280-557415/61
Matrix: Water
Analysis Batch: 557415

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	4.87		mg/L		97	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-557415/12
Matrix: Water
Analysis Batch: 557415

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	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.25		mg/L		105	90 - 110	1	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: LCSD 280-557415/62
Matrix: Water
Analysis Batch: 557415

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	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	4.97		mg/L		99	90 - 110	2	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-557415/10
Matrix: Water
Analysis Batch: 557415

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	4.98		mg/L		100	50 - 150
Fluoride	0.500	0.607		mg/L		121	50 - 150
Sulfate	5.00	4.87	J	mg/L		97	50 - 150

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

Lab Sample ID: 280-154472-1 MS
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	2.1		5.00	6.87		mg/L		96	80 - 120		

Lab Sample ID: 280-154472-1 MS
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	420		1000	1510		mg/L		109	80 - 120		
Sulfate	990		1000	2050		mg/L		106	80 - 120		

Lab Sample ID: 280-154472-1 MSD
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	2.1		5.00	6.47		mg/L		88	80 - 120	6	20

Lab Sample ID: 280-154472-1 MSD
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	420		1000	1510		mg/L		109	80 - 120	0	20
Sulfate	990		1000	2070		mg/L		107	80 - 120	1	20

Lab Sample ID: 280-154472-1 DU
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	2.1		2.08		mg/L		0.09	15

Lab Sample ID: 280-154472-1 DU
Matrix: Water
Analysis Batch: 557415

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	420		419		mg/L		0.7	15
Sulfate	990		982		mg/L		0.9	15

Lab Sample ID: MB 280-557605/6
Matrix: Water
Analysis Batch: 557605

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/16/21 12:53	1
Fluoride	ND		0.50	0.17	mg/L			11/16/21 12:53	1
Sulfate	ND		5.0	1.0	mg/L			11/16/21 12:53	1

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

Lab Sample ID: LCS 280-557605/4
Matrix: Water
Analysis Batch: 557605

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	101		mg/L		101	90 - 110		
Fluoride			5.00	4.85		mg/L		97	90 - 110		
Sulfate			100	102		mg/L		102	90 - 110		

Lab Sample ID: LCSD 280-557605/5
Matrix: Water
Analysis Batch: 557605

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	101		mg/L		101	90 - 110	0	10
Fluoride			5.00	4.89		mg/L		98	90 - 110	1	10
Sulfate			100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-557605/3
Matrix: Water
Analysis Batch: 557605

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	4.95		mg/L		99	50 - 150		
Fluoride			0.500	0.448	J	mg/L		90	50 - 150		
Sulfate			5.00	5.13		mg/L		103	50 - 150		

Lab Sample ID: 280-154472-3 MS
Matrix: Water
Analysis Batch: 557605

Client Sample ID: MW-13EB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		50.0	59.7		mg/L		119	80 - 120		
Fluoride	ND		5.00	4.84		mg/L		97	80 - 120		
Sulfate	ND	F1	50.0	60.6	F1	mg/L		121	80 - 120		

Lab Sample ID: 280-154472-3 MSD
Matrix: Water
Analysis Batch: 557605

Client Sample ID: MW-13EB
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		50.0	55.7		mg/L		111	80 - 120	7	20
Fluoride	ND		5.00	4.61		mg/L		92	80 - 120	5	20
Sulfate	ND	F1	50.0	56.5		mg/L		113	80 - 120	7	20

Lab Sample ID: 280-154472-3 DU
Matrix: Water
Analysis Batch: 557605

Client Sample ID: MW-13EB
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
Fluoride	ND		ND		mg/L		NC	15
Sulfate	ND	F1	ND		mg/L		NC	15

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

Lab Sample ID: MB 280-554892/1
Matrix: Water
Analysis Batch: 554892

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	4.7	mg/L			10/25/21 15:20	1

Lab Sample ID: LCS 280-554892/2
Matrix: Water
Analysis Batch: 554892

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)	506	513		mg/L		101	88 - 114

Lab Sample ID: 280-154472-1 DU
Matrix: Water
Analysis Batch: 554892

Client Sample ID: MW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	2100		2150		mg/L		0.5	10

Lab Sample ID: MB 280-554972/1
Matrix: Water
Analysis Batch: 554972

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	4.7	mg/L			10/26/21 09:10	1

Lab Sample ID: LCS 280-554972/2
Matrix: Water
Analysis Batch: 554972

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)	506	485		mg/L		96	88 - 114

Lab Sample ID: LCSD 280-554972/3
Matrix: Water
Analysis Batch: 554972

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	506	481		mg/L		95	88 - 114	1	20

Lab Sample ID: MB 280-554973/1
Matrix: Water
Analysis Batch: 554973

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	4.7	mg/L			10/26/21 09:12	1

Lab Sample ID: LCS 280-554973/2
Matrix: Water
Analysis Batch: 554973

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)	506	497		mg/L		98	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-554594/1
Matrix: Water
Analysis Batch: 554594

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			10/22/21 09:21	1

Lab Sample ID: LCS 280-554594/2
Matrix: Water
Analysis Batch: 554594

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	83.2		mg/L		83	79 - 114

Lab Sample ID: LCSD 280-554594/3
Matrix: Water
Analysis Batch: 554594

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	100	90.0		mg/L		90	79 - 114	8	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-533887/23-A
Matrix: Water
Analysis Batch: 537292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 533887

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2064	U	0.210	0.211	1.00	0.335	pCi/L	10/27/21 14:28	11/18/21 11:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/27/21 14:28*	*11/18/21 11:35*	*1*

Lab Sample ID: LCS 160-533887/1-A
Matrix: Water
Analysis Batch: 537292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 533887

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	10.58		1.34	1.00	0.335	pCi/L	93	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*81.0*		*40 - 110*

Lab Sample ID: LCSD 160-533887/2-A
Matrix: Water
Analysis Batch: 537292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 533887

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.3	11.96		1.46	1.00	0.344	pCi/L	105	75 - 125	0.49	1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-533887/2-A
Matrix: Water
Analysis Batch: 537292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 533887

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*82.3*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-533889/23-A
Matrix: Water
Analysis Batch: 537097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 533889

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.6196		0.298	0.303	1.00	0.436	pCi/L	10/27/21 15:00	11/17/21 17:07	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/27/21 15:00*	*11/17/21 17:07*	*1*
Y Carrier	*89.3*		*40 - 110*	*10/27/21 15:00*	*11/17/21 17:07*	*1*

Lab Sample ID: LCS 160-533889/1-A
Matrix: Water
Analysis Batch: 537255

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 533889

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.14	8.324		1.04	1.00	0.483	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*81.0*		*40 - 110*
Y Carrier	*90.1*		*40 - 110*

Lab Sample ID: LCSD 160-533889/2-A
Matrix: Water
Analysis Batch: 537255

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 533889

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.14	8.814		1.07	1.00	0.423	pCi/L	96	75 - 125	0.23	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*82.3*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Metals

Prep Batch: 510507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total Recoverable	Water	3005A	
280-154472-2	MW-13	Total Recoverable	Water	3005A	
280-154472-3	MW-13EB	Total Recoverable	Water	3005A	
280-154472-4	MW-14	Total Recoverable	Water	3005A	
280-154472-5	MW-15	Total Recoverable	Water	3005A	
280-154472-6	MW-16	Total Recoverable	Water	3005A	
280-154472-7	MW-16D	Total Recoverable	Water	3005A	
MB 240-510507/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-510507/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-510507/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 510509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	7470A	
280-154472-2	MW-13	Total/NA	Water	7470A	
280-154472-3	MW-13EB	Total/NA	Water	7470A	
280-154472-4	MW-14	Total/NA	Water	7470A	
280-154472-5	MW-15	Total/NA	Water	7470A	
280-154472-6	MW-16	Total/NA	Water	7470A	
280-154472-7	MW-16D	Total/NA	Water	7470A	
MB 240-510509/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-510509/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 510861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	7470A	510509
280-154472-2	MW-13	Total/NA	Water	7470A	510509
280-154472-3	MW-13EB	Total/NA	Water	7470A	510509
280-154472-4	MW-14	Total/NA	Water	7470A	510509
280-154472-5	MW-15	Total/NA	Water	7470A	510509
280-154472-6	MW-16	Total/NA	Water	7470A	510509
280-154472-7	MW-16D	Total/NA	Water	7470A	510509
MB 240-510509/1-A	Method Blank	Total/NA	Water	7470A	510509
LCS 240-510509/2-A	Lab Control Sample	Total/NA	Water	7470A	510509

Analysis Batch: 510947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total Recoverable	Water	6020A	510507
280-154472-2	MW-13	Total Recoverable	Water	6020A	510507
280-154472-3	MW-13EB	Total Recoverable	Water	6020A	510507
280-154472-4	MW-14	Total Recoverable	Water	6020A	510507
280-154472-5	MW-15	Total Recoverable	Water	6020A	510507
280-154472-6	MW-16	Total Recoverable	Water	6020A	510507
280-154472-7	MW-16D	Total Recoverable	Water	6020A	510507
MB 240-510507/1-A	Method Blank	Total Recoverable	Water	6020A	510507
LCS 240-510507/3-A	Lab Control Sample	Total Recoverable	Water	6020A	510507

Analysis Batch: 511035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total Recoverable	Water	6010C	510507
280-154472-2	MW-13	Total Recoverable	Water	6010C	510507

Metals (Continued)

Analysis Batch: 511035 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-3	MW-13EB	Total Recoverable	Water	6010C	510507
280-154472-4	MW-14	Total Recoverable	Water	6010C	510507
280-154472-5	MW-15	Total Recoverable	Water	6010C	510507
280-154472-6	MW-16	Total Recoverable	Water	6010C	510507
280-154472-7	MW-16D	Total Recoverable	Water	6010C	510507
MB 240-510507/1-A	Method Blank	Total Recoverable	Water	6010C	510507
LCS 240-510507/2-A	Lab Control Sample	Total Recoverable	Water	6010C	510507

General Chemistry

Analysis Batch: 554594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	SM 2540D	
280-154472-2	MW-13	Total/NA	Water	SM 2540D	
280-154472-3	MW-13EB	Total/NA	Water	SM 2540D	
280-154472-4	MW-14	Total/NA	Water	SM 2540D	
280-154472-5	MW-15	Total/NA	Water	SM 2540D	
280-154472-6	MW-16	Total/NA	Water	SM 2540D	
280-154472-7	MW-16D	Total/NA	Water	SM 2540D	
MB 280-554594/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-554594/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-554594/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 554752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	9040B	
280-154472-2	MW-13	Total/NA	Water	9040B	
280-154472-4	MW-14	Total/NA	Water	9040B	
280-154472-5	MW-15	Total/NA	Water	9040B	
280-154472-6	MW-16	Total/NA	Water	9040B	
280-154472-7	MW-16D	Total/NA	Water	9040B	
LCS 280-554752/4	Lab Control Sample	Total/NA	Water	9040B	
280-154472-1 DU	MW-10	Total/NA	Water	9040B	

Analysis Batch: 554892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	SM 2540C	
MB 280-554892/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-554892/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-154472-1 DU	MW-10	Total/NA	Water	SM 2540C	

Analysis Batch: 554951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-3	MW-13EB	Total/NA	Water	9040B	
LCS 280-554951/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 554972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-7	MW-16D	Total/NA	Water	SM 2540C	
MB 280-554972/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-554972/2	Lab Control Sample	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 554972 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-554972/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 554973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-2	MW-13	Total/NA	Water	SM 2540C	
280-154472-3	MW-13EB	Total/NA	Water	SM 2540C	
280-154472-4	MW-14	Total/NA	Water	SM 2540C	
280-154472-5	MW-15	Total/NA	Water	SM 2540C	
280-154472-6	MW-16	Total/NA	Water	SM 2540C	
MB 280-554973/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-554973/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 557415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	9056A	
280-154472-1	MW-10	Total/NA	Water	9056A	
280-154472-5	MW-15	Total/NA	Water	9056A	
280-154472-5	MW-15	Total/NA	Water	9056A	
280-154472-6	MW-16	Total/NA	Water	9056A	
280-154472-6	MW-16	Total/NA	Water	9056A	
280-154472-7	MW-16D	Total/NA	Water	9056A	
280-154472-7	MW-16D	Total/NA	Water	9056A	
MB 280-557415/13	Method Blank	Total/NA	Water	9056A	
MB 280-557415/63	Method Blank	Total/NA	Water	9056A	
LCS 280-557415/11	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-557415/61	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-557415/12	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-557415/62	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-557415/10	Lab Control Sample	Total/NA	Water	9056A	
280-154472-1 MS	MW-10	Total/NA	Water	9056A	
280-154472-1 MS	MW-10	Total/NA	Water	9056A	
280-154472-1 MSD	MW-10	Total/NA	Water	9056A	
280-154472-1 MSD	MW-10	Total/NA	Water	9056A	
280-154472-1 DU	MW-10	Total/NA	Water	9056A	
280-154472-1 DU	MW-10	Total/NA	Water	9056A	

Analysis Batch: 557605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-2	MW-13	Total/NA	Water	9056A	
280-154472-2	MW-13	Total/NA	Water	9056A	
280-154472-3	MW-13EB	Total/NA	Water	9056A	
280-154472-4	MW-14	Total/NA	Water	9056A	
280-154472-4	MW-14	Total/NA	Water	9056A	
MB 280-557605/6	Method Blank	Total/NA	Water	9056A	
LCS 280-557605/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-557605/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-557605/3	Lab Control Sample	Total/NA	Water	9056A	
280-154472-3 MS	MW-13EB	Total/NA	Water	9056A	
280-154472-3 MSD	MW-13EB	Total/NA	Water	9056A	
280-154472-3 DU	MW-13EB	Total/NA	Water	9056A	

Rad

Prep Batch: 533887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	PrecSep-21	
280-154472-2	MW-13	Total/NA	Water	PrecSep-21	
280-154472-3	MW-13EB	Total/NA	Water	PrecSep-21	
280-154472-4	MW-14	Total/NA	Water	PrecSep-21	
280-154472-5	MW-15	Total/NA	Water	PrecSep-21	
280-154472-6	MW-16	Total/NA	Water	PrecSep-21	
280-154472-7	MW-16D	Total/NA	Water	PrecSep-21	
MB 160-533887/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-533887/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-533887/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 533889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-154472-1	MW-10	Total/NA	Water	PrecSep_0	
280-154472-2	MW-13	Total/NA	Water	PrecSep_0	
280-154472-3	MW-13EB	Total/NA	Water	PrecSep_0	
280-154472-4	MW-14	Total/NA	Water	PrecSep_0	
280-154472-5	MW-15	Total/NA	Water	PrecSep_0	
280-154472-6	MW-16	Total/NA	Water	PrecSep_0	
280-154472-7	MW-16D	Total/NA	Water	PrecSep_0	
MB 160-533889/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-533889/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-533889/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-10
Date Collected: 10/19/21 15:30
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-1
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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:25	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:09	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:46	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 15:52	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557415	11/15/21 22:47	SPG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	557415	11/16/21 00:12	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	554892	10/25/21 16:20	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.62 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:46	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.62 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537057	11/17/21 16:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:49	MLK	TAL SL

Client Sample ID: MW-13
Date Collected: 10/20/21 10:15
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-2
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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:30	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:11	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:48	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 15:59	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557605	11/17/21 02:19	CJ	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	557605	11/17/21 02:33	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	554973	10/26/21 10:12	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			1000.40 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:46	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.40 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537057	11/17/21 16:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:49	MLK	TAL SL

Client Sample ID: MW-13EB
Lab Sample ID: 280-154472-3

Date Collected: 10/20/21 10:40
Matrix: Water
Date Received: 10/21/21 09:34

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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:42	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:14	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:50	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554951	10/23/21 18:45	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557605	11/17/21 02:47	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	554973	10/26/21 10:12	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			1000.80 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:47	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.80 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537057	11/17/21 16:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:49	MLK	TAL SL

Client Sample ID: MW-14
Lab Sample ID: 280-154472-4

Date Collected: 10/20/21 11:50
Matrix: Water
Date Received: 10/21/21 09:34

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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:47	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:16	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:52	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 16:09	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557605	11/17/21 05:07	CJ	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	557605	11/17/21 05:21	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	554973	10/26/21 10:12	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.62 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:47	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.62 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537057	11/17/21 16:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:49	MLK	TAL SL

Client Sample ID: MW-15
Lab Sample ID: 280-154472-5

Date Collected: 10/19/21 14:05
Matrix: Water
Date Received: 10/21/21 09:34

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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:51	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:19	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:54	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 16:14	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557415	11/15/21 18:21	SPG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	557415	11/15/21 18:35	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	554973	10/26/21 10:12	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			1000.18 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.18 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537097	11/17/21 17:05	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:49	MLK	TAL SL

Client Sample ID: MW-16
Lab Sample ID: 280-154472-6

Date Collected: 10/19/21 10:35
Matrix: Water
Date Received: 10/21/21 09:34

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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 14:55	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:21	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:56	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 16:18	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557415	11/16/21 01:50	SPG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	557415	11/16/21 02:04	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	554973	10/26/21 10:12	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			1000.26 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537291	11/18/21 09:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.26 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537097	11/17/21 17:06	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:50	MLK	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Client Sample ID: MW-16D
Date Collected: 10/19/21 10:35
Date Received: 10/21/21 09:34

Lab Sample ID: 280-154472-7
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	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1			511035	11/02/21 15:00	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	510507	10/29/21 14:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1			510947	11/01/21 15:24	AJC	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	510509	10/29/21 14:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1			510861	11/01/21 14:58	MRL	TAL CAN
Total/NA	Analysis	9040B		1			554752	10/22/21 16:21	ECC	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	557415	11/15/21 19:17	SPG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	557415	11/15/21 19:31	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	554972	10/26/21 10:10	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	554594	10/22/21 09:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			1000.60 mL	1.0 g	533887	10/27/21 14:28	BMP	TAL SL
Total/NA	Analysis	9315		1			537292	11/18/21 11:35	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.60 mL	1.0 g	533889	10/27/21 15:00	BMP	TAL SL
Total/NA	Analysis	9320		1			537097	11/17/21 17:07	ANW	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			537488	11/18/21 18:50	MLK	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025-011	01-08-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9040B		Water	Temperature

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	06-30-21 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	01-01-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Tara Kent	Lab PM: Harrington, Danielle	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 7209337496	E-Mail: danielle.harrington@eurofinset.com		Page: 1 of 1
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): Standard TAT			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: molly.reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Colorado Groundwater AP III + AP IV + TSS	SSOW#:			

Analysis Requested

280-154472 Chain of Custody

Preservation Codes:

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

Other:

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, 6020A, 7470A - App III / App IV	9056A_28D - Anions (Chloride, Fluoride, Sulfate)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - Radium 226 and 228 combined	2540C_Calc - TDS	2540D - TSS	9040B - pH	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N	N	N		
MW-10	10-19-21	1530	G	W	N	N	X	X	X	X	X	X	7	~~Sub~~ Radchem to St. Louis / Metals to Canton
MW-13	10-20-21	1015	G	W	N	N	X	X	X	X	X	X	7	App III & IV for All
MW-13 EB	10-20-21	1040	G	W	N	N	X	X	X	X	X	X	7	
MW-14	10-20-21	1150	G	W	N	N	X	X	X	X	X	X	7	
MW-15	10-19-21	1405	G	W	N	N	X	X	X	X	X	X	7	
MW-16	10-19-21	1035	G	W	N	N	X	X	X	X	X	X	7	
MW-16D	10-19-21	1035	G	W	N	N	X	X	X	X	X	X	7	

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Tara Kent	10-21-21 0934	HDR		10/21/21 0934	TA 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.:

Cooler Temperature(s) °C and Other Remarks: 0.9, 1.6, 2.2 IR11 CF+1.0

Ver: 01/16/2019

11/22/2021

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-590693.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-154472-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/21/2021			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 - 1/3 - SUB	9320_Ra228/PrecSep_0 Radium-228 - 2/3 - SUB	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-10 (280-154472-1)	10/19/21	15:30 Mountain		Water			X	X	X	2	
MW-13 (280-154472-2)	10/20/21	10:15 Mountain		Water			X	X	X	2	
MW-13EB (280-154472-3)	10/20/21	10:40 Mountain		Water			X	X	X	2	
MW-14 (280-154472-4)	10/20/21	11:50 Mountain		Water			X	X	X	2	
MW-15 (280-154472-5)	10/19/21	14:05 Mountain		Water			X	X	X	2	
MW-16 (280-154472-6)	10/19/21	10:35 Mountain		Water			X	X	X	2	
MW-16D (280-154472-7)	10/19/21	10:35 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[illegible]	10/25/21 1520	[illegible]	FED EX		
	Relinquished by: FED EX	Date/Time:	Company	Received by:	Date/Time: OCT 26 2021 1335	Company ETA STL
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

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

1.8.19

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-590674.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 280-154472-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 11/21/2021			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Cherokee	Project #: 28014371			
Site: Xcel Energy CCR - Cherokee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A 13 T. Metals (w/collision cell)	6010C/3005A Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-10 (280-154472-1)	10/19/21	15:30 Mountain		Water			X	X	X	2	Use Collision Cell
MW-13 (280-154472-2)	10/20/21	10:15 Mountain		Water			X	X	X	2	Use Collision Cell
MW-13EB (280-154472-3)	10/20/21	10:40 Mountain		Water			X	X	X	2	Use Collision Cell
MW-14 (280-154472-4)	10/20/21	11:50 Mountain		Water			X	X	X	2	Use Collision Cell
MW-15 (280-154472-5)	10/19/21	14:05 Mountain		Water			X	X	X	2	Use Collision Cell
MW-16 (280-154472-6)	10/19/21	10:35 Mountain		Water			X	X	X	2	Use Collision Cell
MW-16D (280-154472-7)	10/19/21	10:35 Mountain		Water			X	X	X	2	Use Collision Cell

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Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10-26-21 1412	ETADEN		10/28/21 1020	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

11/22/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Site Name _____ Cooler unpacked by: Trent

Cooler Received on 10/28/21 Opened on 10/28/21

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-14 (CF **+0.1** °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 1.9 °C
   IR GUN #IR-15 (CF **+0.2**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No	
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No	NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)	
-Were tamper/custody seals intact and uncompromised?	(Yes)	No	NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No	
4. Did custody papers accompany the sample(s)?	(Yes)	No	
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)	
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No	
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No	
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?	(Y)	(Y)	(N)
10. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No	
11. Sufficient quantity received to perform indicated analyses?	(Yes)	No	
12. Are these work share samples and all listed on the COC?	(Yes)	No	
If yes, Questions 13-17 have been checked at the originating laboratory.			
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No	NA
14. Were VOAs on the COC?	Yes	No	
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No	NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No	
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No	

pH Strip Lot# **HC157842**

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-154472-1

Login Number: 154472
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-154472-1

Login Number: 154472
List Number: 2
Creator: Johnson, Autumn R

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/26/21 02:56 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-154472-1
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(40-110)
280-154472-1	MW-10	52.3
280-154472-2	MW-13	68.5
280-154472-3	MW-13EB	90.0
280-154472-4	MW-14	58.3
280-154472-5	MW-15	102
280-154472-6	MW-16	103
280-154472-7	MW-16D	100
LCS 160-533887/1-A	Lab Control Sample	81.0
LCSD 160-533887/2-A	Lab Control Sample Dup	82.3
MB 160-533887/23-A	Method Blank	89.8

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
280-154472-1	MW-10	52.3	91.2
280-154472-2	MW-13	68.5	92.7
280-154472-3	MW-13EB	90.0	91.6
280-154472-4	MW-14	58.3	91.2
280-154472-5	MW-15	102	91.6
280-154472-6	MW-16	103	91.6
280-154472-7	MW-16D	100	92.7
LCS 160-533889/1-A	Lab Control Sample	81.0	90.1
LCSD 160-533889/2-A	Lab Control Sample Dup	82.3	90.8
MB 160-533889/23-A	Method Blank	89.8	89.3

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier