



2020 Annual Groundwater Monitoring and Corrective Action Report

for Compliance with the Coal Combustion
Residuals (CCR) Rule

Cherokee Station

Public Service Company of Colorado



January 29, 2021





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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
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

2020 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.

Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2021



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 facilities 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 three ash impoundments were closed in 2018 and the CTRP was closed in 2017; all were physically closed by removal of CCR, with ongoing groundwater monitoring.

In 2020, 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 2020:

- The status of the groundwater monitoring program for the (closed) West, Center, and East ash impoundments at the end of 2020 is in assessment monitoring.
- The status of the groundwater monitoring program for the (closed) CTRP at the end of 2020 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. 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

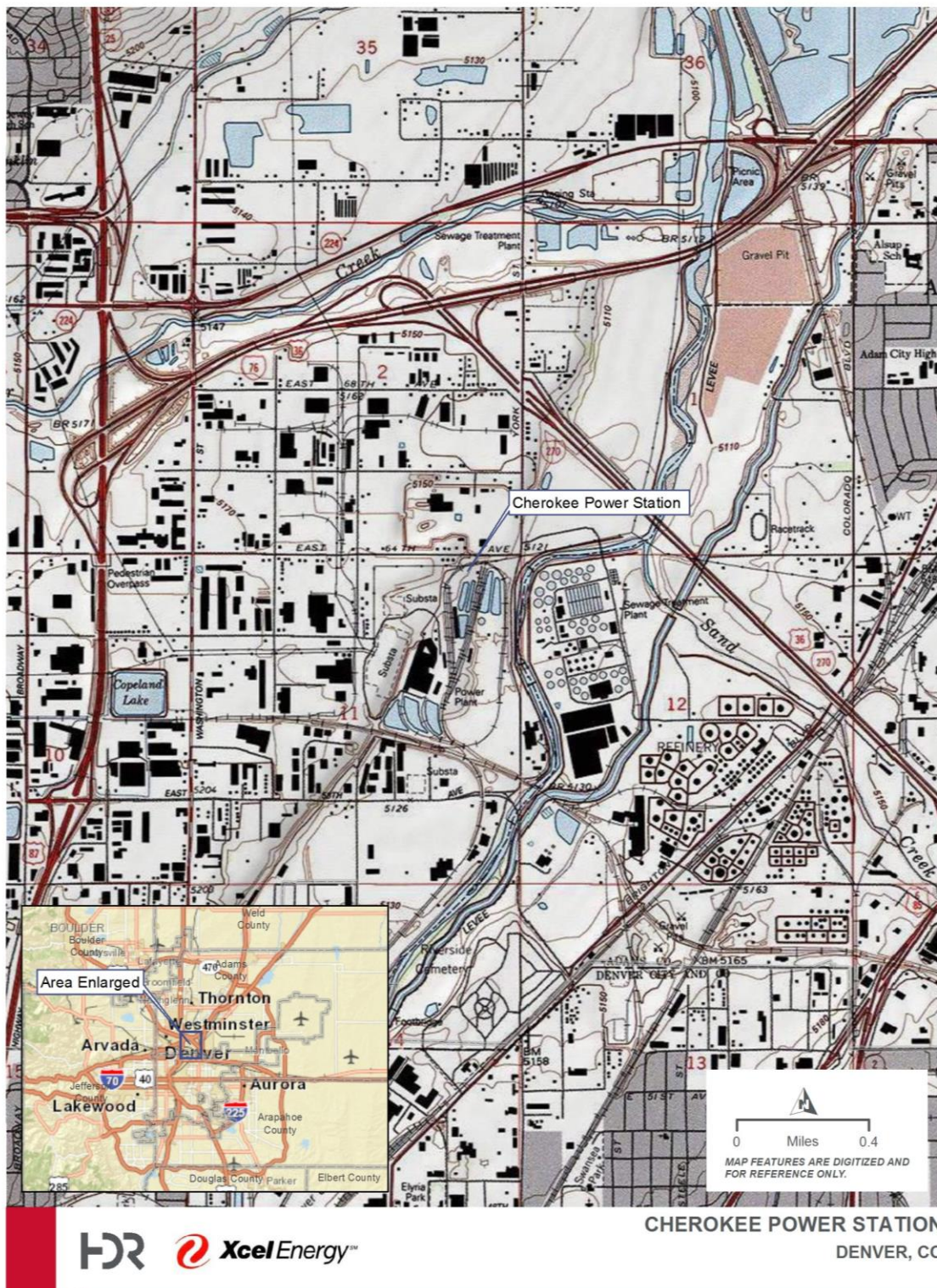
The CCR Rule requires, at a minimum, one upgradient and three downgradient monitoring wells per CCR unit to be completed in the uppermost aquifer. Section 257.9 of the Rule states that the operator: “...*may install a multiunit groundwater monitoring system instead of separate groundwater monitoring 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 2020 for the former ash impoundments.

The three ash impoundments were closed in December 2018 by removal of all CCR after first dewatering the impoundments. All CCR were removed, 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.



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**). No monitoring wells were installed or abandoned in 2020 for the former CTRP.



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
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Figure 1. Vicinity map for Cherokee Station.

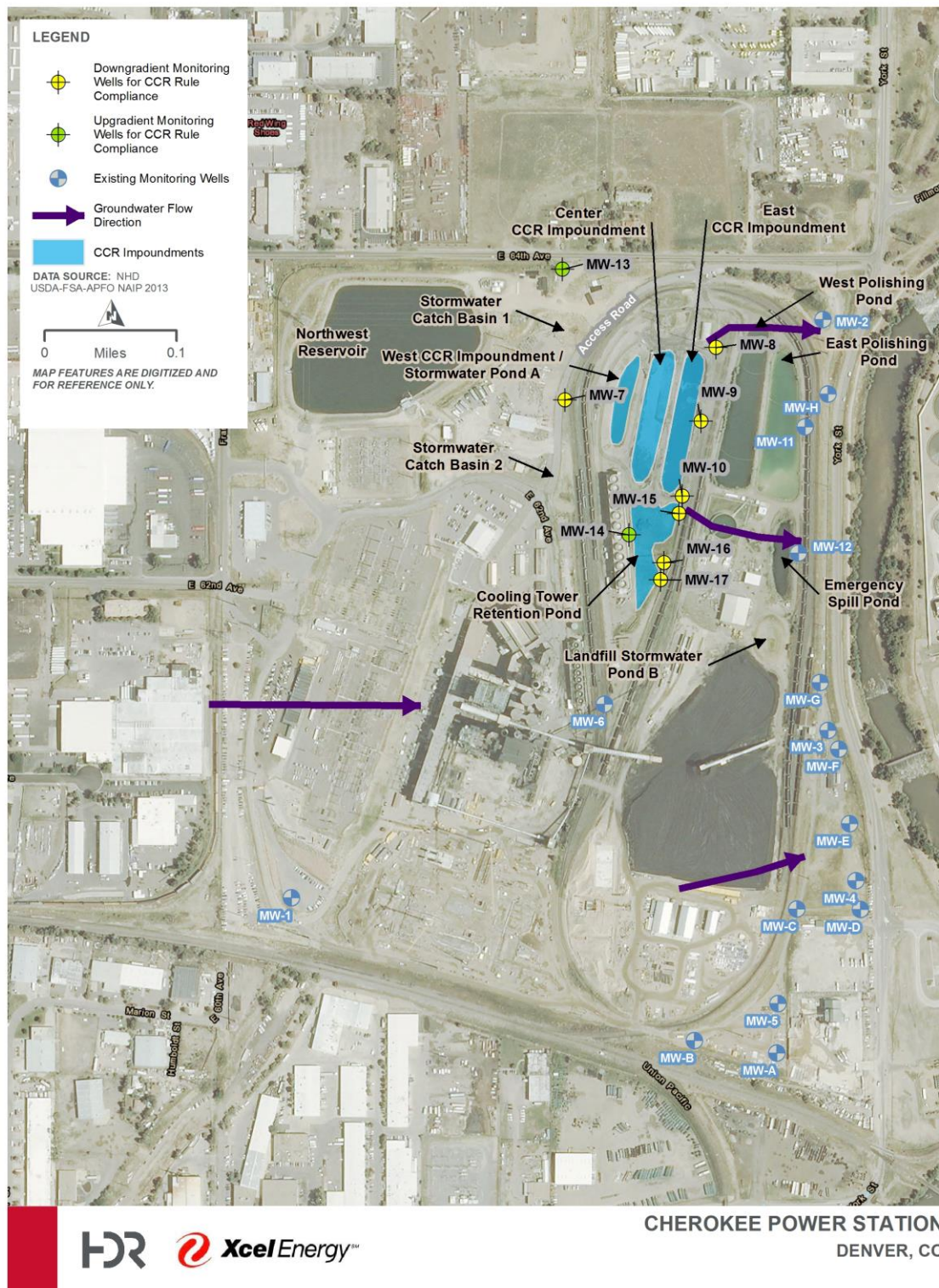


Figure 2. Cherokee Station – CCR unit and monitoring well location map.

3.0 Monitoring

3.1 Frequency

3.1.1 West, Center, and East Ash Impoundments

Assessment monitoring continued in 2020 for the former Ash Impoundments. An annual assessment monitoring event was completed on April 21-22, 2020 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 2020, and the respective assessment monitoring programs (per (257.90(e)(3))).

On October 27-28, 2020, semi-annual assessment monitoring was conducted at the former Ash Impoundments certified monitoring wells. Samples were analyzed for all Appendix III and detected Appendix IV COIs plus TSS. Monitoring wells MW-7, 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 2020 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 22, 2020	Annual Assessment Monitoring
		October 27, 2020*	Semi-Annual Assessment Monitoring
MW-8	Downgradient	April 22, 2020*	Annual Assessment Monitoring
		October 27, 2020*	Semi-Annual Assessment Monitoring
MW-9	Downgradient	April 22, 2020*	Annual Assessment Monitoring
		October 27, 2020*	Semi-Annual Assessment Monitoring
MW-10	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 27, 2020	Semi-Annual Assessment Monitoring
MW-13	Upgradient / Background	April 21, 2020	Annual Assessment Monitoring
		October 27, 2020	Semi-Annual Assessment Monitoring

¹Hydraulically upgradient though potentially influenced by impoundments

*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, with an annual event from April 21-22, 2020 and a semi-annual event from October 27-28, 2020. **Table 3** provides the well identification, number of samples collected, dates samples were collected in 2020, 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 2020 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	April 22, 2020	Annual Assessment Monitoring
		October 28, 2020	Semi-Annual Assessment Monitoring
MW-15	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 27, 2020	Semi-Annual Assessment Monitoring
MW-16	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 28, 2020	Semi-Annual Assessment Monitoring
MW-17	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 28, 2020	Semi-Annual Assessment Monitoring

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 and lab duplicate analyses were within the control limit criterion of 20%. Laboratory Control Sample (LCS)/LCS duplicates and Matrix Spike/Duplicate (MS/MSD) recoveries and RPDs were generally within control limits. 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. In the October 2020 semi-annual assessment monitoring event, well MW-7 was also 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 2020 and is consistent with the water level data from April 2020. 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.

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 completely 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 2020, 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 2020. Laboratory reports for the 2020 assessment monitoring events are provided in **Appendix B**.

After the April 2020 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. Background values for Appendix III COIs boron, calcium, chloride, pH, sulfate, and TDS were still exceeded at MW-10. At MW-7, however, concentrations of some Appendix III constituents decreased to below BTVs. Only fluoride and sulfate BTVs were still in exceedance at MW-7. Therefore, in accordance with CCR Rule 257.95(f), the CCR unit continued in assessment monitoring.

After the October 2020 semi-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. Background values for Appendix III COIs boron, calcium, chloride, fluoride, pH, sulfate, and TDS were still exceeded at MW-10. Therefore, in accordance with CCR Rule 257.95(f), the CCR unit continues in assessment monitoring.

In 2021 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

The initial assessment monitoring event was completed in July 22-23, 2019, and the second assessment monitoring event was completed on October 22, 2019. The statistical evaluation from the October 2019 sample event was completed in 2020. In accordance with CCR Rule 257.95(e), downgradient well concentrations from October 2019 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.

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 2020. 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 2020 assessment monitoring event, in accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against background values, and no 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 were found not to exceed GPS. Therefore, in accordance with 257.95(e-f), the CCR unit continued in assessment monitoring.

After the October 2020 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 only a slight GPS exceedance of lithium at MW-15 and MW-16 was observed. No other Appendix IV COIs had exceedances of GPS. Therefore, in accordance with CCR Rule 257.95(g), the downgradient well data from October 2020 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 2020 and prior sample events:

(Closed) West, Center, and East Ash Impoundments

- All 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 21-22, 2020 for annual assessment monitoring for Appendix III and IV COIs (MW-8 and MW-9 were dry). Concentrations of Appendix III COIs remained above BTVs. No concentrations were observed above the GPS.
- The certified well network wells for the impoundments was sampled October 27-28, 2020 for semiannual assessment monitoring for Appendix III and detected IV COIs (MW-7, MW-8, and MW-9 were dry). Concentrations of Appendix III COIs remained above BTVs. No concentrations were observed above the GPS.
- Cherokee Station Ash Impoundments status at the end of 2020 is assessment monitoring. Assessment monitoring will continue in 2021 while continuing to evaluate whether clean closure criteria in groundwater have been met.

(Closed) Cooling Tower Retention Pond

- All 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 21-22, 2020 for annual assessment monitoring for Appendix III and IV COIs. Concentrations of Appendix III COIs did not exceed BTVs and no concentrations of Appendix IV COIs were observed above the GPS.
- The certified well network for the CTRP was sampled October 27-28, 2020 for semiannual assessment monitoring for Appendix III and detected IV COIs (MW-7, 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 lithium at MW-15 and MW-16 was observed. No concentrations were found to be at SSLs above the GPS.

- Cherokee Station CTRP status at the end of 2020 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.

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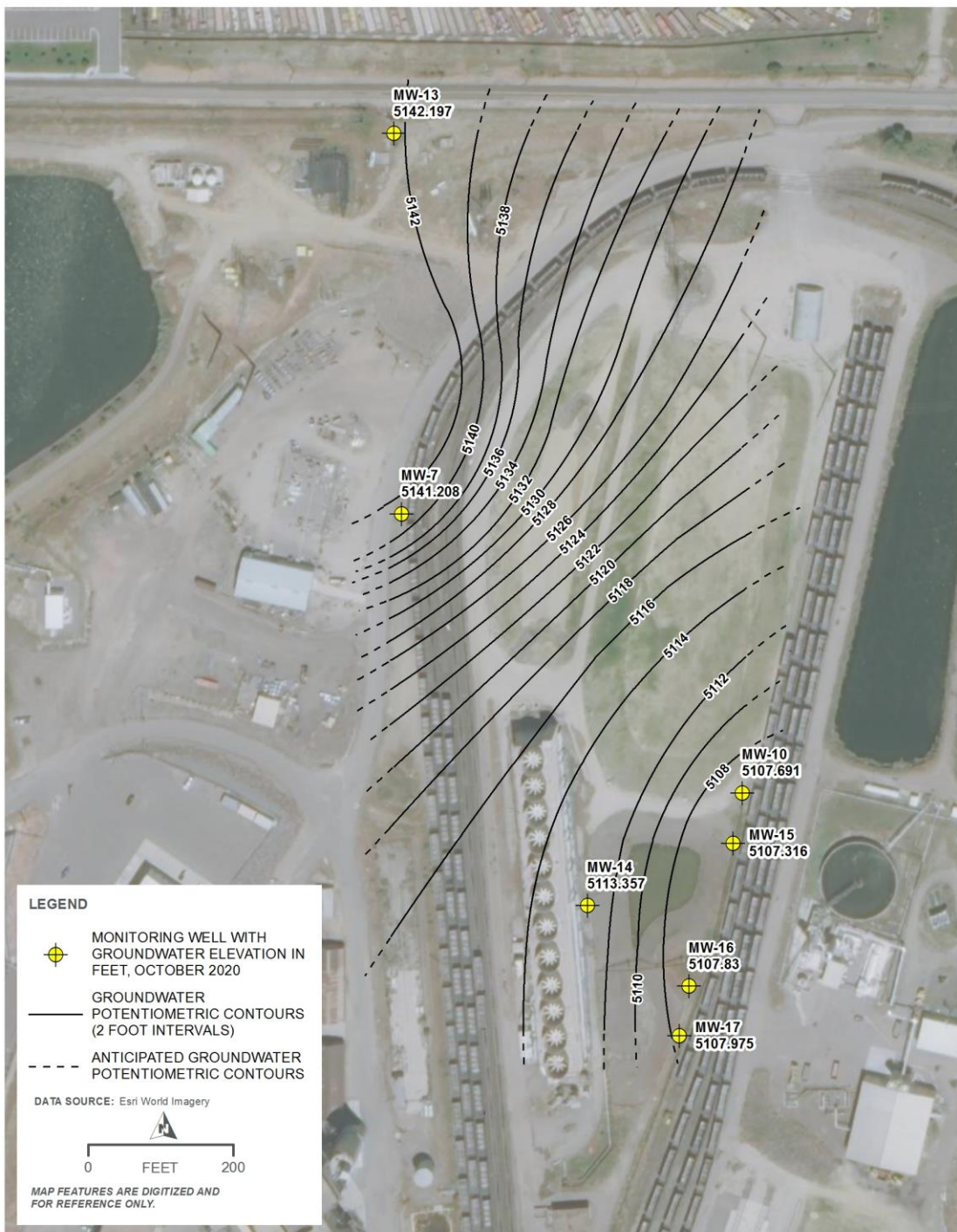
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Appendix A

Potentiometric Surface Map



CHEROKEE POWER STATION
ADAMS COUNTY, CO

Appendix B

Laboratory Reports

ANALYTICAL REPORT

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

Laboratory Job ID: 280-135835-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Cherokee

For:

HDR Inc
1670 Broadway, Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/26/2020 12:36:10 PM

Darlene Bandy, Project Manager I
(303)736-0188
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LINKS

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

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

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

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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.
L	A negative instrument reading had an absolute value greater than the reporting limit

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
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
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Job ID: 280-135835-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-135835-1

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 4/23/2020 8:07 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.9° C and 1.6° C.

Receipt Exceptions

One out of the three coolers received did not have a custody seal on it at the time of receipt. It is noted that the client dropped off the samples; therefore, custody seals are not required.

MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9)

TOTAL RECOVERABLE METALS

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/27/2020 and analyzed on 04/29/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/27/2020 and analyzed on 04/28/2020.

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

TOTAL MERCURY

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/27/2020.

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

TOTAL DISSOLVED SOLIDS

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Job ID: 280-135835-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/27/2020.

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

TOTAL SUSPENDED SOLIDS

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/27/2020.

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

CORROSIVITY (PH)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/27/2020 and 04/28/2020.

Sample pH for the following sample did not equilibrate to 0.05 pH units after 3 measurements: MW-7EB (280-135835-2). This was observed in a previous analysis thus the samples was not rerun.

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

ANIONS (28 DAYS)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/06/2020 and 05/13/2020.

Samples MW-7 (280-135835-1)[5X], MW-10 (280-135835-3)[5X], MW-10D (280-135835-4)[5X], MW-13 (280-135835-5)[5X], MW-14 (280-135835-6)[5X], MW-15 (280-135835-7)[5X] and MW-16 (280-135835-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

It is noted that the MS/MSD for Sulfate in analysis batch 280-493851 was over the calibration range. The parent sample was within the calibration range; therefore, the data have been reported.

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

RADIUM-226 (GFPC)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 04/30/2020 and analyzed on 05/26/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to cloudy and discolored appearance: MW-7 (280-135835-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Job ID: 280-135835-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

RADIUM-228

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 04/30/2020 and analyzed on 05/14/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to cloudy and discolored appearance: MW-7 (280-135835-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-7 (280-135835-1), MW-7EB (280-135835-2), MW-10 (280-135835-3), MW-10D (280-135835-4), MW-13 (280-135835-5), MW-14 (280-135835-6), MW-15 (280-135835-7), MW-16 (280-135835-8) and MW-17 (280-135835-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/26/2020.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-7

Lab Sample ID: 280-135835-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.023	mg/L	1		6010C	Total
Arsenic	0.0021	J	0.0050	0.00075	mg/L	1		6020A	Recoverable Total
Barium	0.031		0.0050	0.0022	mg/L	1		6020A	Recoverable Total
Calcium	84		1.0	0.58	mg/L	1		6020A	Recoverable Total
Chromium	0.0071		0.0020	0.00098	mg/L	1		6020A	Recoverable Total
Cobalt	0.0010		0.0010	0.00019	mg/L	1		6020A	Recoverable Total
Lead	0.0021		0.0010	0.00045	mg/L	1		6020A	Recoverable Total
Lithium	0.028		0.0080	0.0017	mg/L	1		6020A	Recoverable Total
Molybdenum	0.020		0.010	0.0011	mg/L	1		6020A	Recoverable Total
Selenium	0.012		0.0050	0.00089	mg/L	1		6020A	Recoverable Total
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	170		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	350		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1400		33	9.2	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7EB

Lab Sample ID: 280-135835-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-10

Lab Sample ID: 280-135835-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.4		0.10	0.023	mg/L	1		6010C	Total
Antimony	0.00075	J	0.0020	0.00057	mg/L	1		6020A	Recoverable Total
Arsenic	0.0013	J	0.0050	0.00075	mg/L	1		6020A	Recoverable Total
Barium	0.055		0.0050	0.0022	mg/L	1		6020A	Recoverable Total
Calcium	240		1.0	0.58	mg/L	1		6020A	Recoverable Total
Chromium	0.0054		0.0020	0.00098	mg/L	1		6020A	Recoverable Total
Cobalt	0.0043		0.0010	0.00019	mg/L	1		6020A	Recoverable Total
Lithium	0.075		0.0080	0.0017	mg/L	1		6020A	Recoverable Total
Molybdenum	0.063		0.010	0.0011	mg/L	1		6020A	Recoverable Total

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-10 (Continued)

Lab Sample ID: 280-135835-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.026		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	340		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.89		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	780		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-10D

Lab Sample ID: 280-135835-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.00073	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.054		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0054		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0043		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.075		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.063		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.026		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	340		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.95		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	800		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-13

Lab Sample ID: 280-135835-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.56		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.087		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0031		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.00078	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.00055	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-13 (Continued)

Lab Sample ID: 280-135835-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.034		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0027	J	0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0035	J	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	22.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	160		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.70		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	220		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	990		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-14

Lab Sample ID: 280-135835-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.97		0.10	0.023	mg/L	1		6010C	Total
									Recoverable
Arsenic	0.00080	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.046		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Calcium	170		1.0	0.58	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0027		0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00038	J	0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.067		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.022		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0065		0.0050	0.00089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	280		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	320		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	37		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-15

Lab Sample ID: 280-135835-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.2		0.10	0.023	mg/L	1		6010C	Total
									Recoverable
Antimony	0.0014	J	0.0020	0.00057	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0023	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.034		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Calcium	180		1.0	0.58	mg/L	1		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-15 (Continued)

Lab Sample ID: 280-135835-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0055		0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.0025		0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.083		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.039		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.039		0.0050	0.00089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	380		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-16

Lab Sample ID: 280-135835-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.60		0.10	0.023	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00062	J	0.0020	0.00057	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0029	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.052		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
Chromium	0.013		0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00050	J	0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.054		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.013		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0085		0.0050	0.00089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	470		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-17

Lab Sample ID: 280-135835-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41		0.10	0.023	mg/L	1		6010C	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-17 (Continued)

Lab Sample ID: 280-135835-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0038	J	0.0050	0.00075	mg/L	1		6020A	Total
Barium	0.045		0.0050	0.0022	mg/L	1		6020A	Recoverable
Cadmium	0.00091	J	0.0010	0.00020	mg/L	1		6020A	Total
Calcium	84		1.0	0.58	mg/L	1		6020A	Recoverable
Chromium	0.0011	J	0.0020	0.00098	mg/L	1		6020A	Total
Cobalt	0.00024	J	0.0010	0.00019	mg/L	1		6020A	Recoverable
Lithium	0.031		0.0080	0.0017	mg/L	1		6020A	Total
Molybdenum	0.0057	J	0.010	0.0011	mg/L	1		6020A	Recoverable
Selenium	0.0055		0.0050	0.00089	mg/L	1		6020A	Total
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Recoverable
Temperature	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	140		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	200		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	710		20	9.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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: 280-135835-1

Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-135835-1	MW-7	Water	04/22/20 08:40	04/23/20 08:07	
280-135835-2	MW-7EB	Water	04/22/20 09:05	04/23/20 08:07	
280-135835-3	MW-10	Water	04/22/20 11:30	04/23/20 08:07	
280-135835-4	MW-10D	Water	04/22/20 11:35	04/23/20 08:07	
280-135835-5	MW-13	Water	04/21/20 13:55	04/23/20 08:07	
280-135835-6	MW-14	Water	04/22/20 09:50	04/23/20 08:07	
280-135835-7	MW-15	Water	04/22/20 13:00	04/23/20 08:07	
280-135835-8	MW-16	Water	04/22/20 14:30	04/23/20 08:07	
280-135835-9	MW-17	Water	04/22/20 15:45	04/23/20 08:07	

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:00	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:04	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.4		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:08	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.3		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:13	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.56		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:18	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.97		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:30	1

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.2		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:35	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.60		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:40	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.10	0.023	mg/L	—	04/27/20 14:00	04/29/20 18:44	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:42	1
Arsenic	0.0021	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:42	1
Barium	0.031		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:42	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:42	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:42	1
Calcium	84		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:42	1
Chromium	0.0071		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:42	1
Cobalt	0.0010		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:42	1
Lead	0.0021		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:42	1
Lithium	0.028		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:42	1
Molybdenum	0.020		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:42	1
Selenium	0.012		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:42	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:42	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:44	1
Arsenic	ND		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:44	1
Barium	ND		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:44	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:44	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:44	1
Calcium	ND		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:44	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:44	1
Cobalt	ND		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:44	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:44	1
Lithium	ND		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:44	1
Molybdenum	ND		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:44	1
Selenium	ND		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:44	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:44	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00075	J	0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:47	1
Arsenic	0.0013	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:47	1
Barium	0.055		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:47	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:47	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:47	1
Calcium	240		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:47	1
Chromium	0.0054		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:47	1
Cobalt	0.0043		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:47	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:47	1
Lithium	0.075		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:47	1
Molybdenum	0.063		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:47	1
Selenium	0.026		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:47	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:47	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00073	J	0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:54	1
Arsenic	0.0014	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:54	1
Barium	0.054		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:54	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:54	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:54	1
Calcium	240		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:54	1
Chromium	0.0054		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:54	1
Cobalt	0.0043		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:54	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:54	1
Lithium	0.075		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:54	1
Molybdenum	0.063		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:54	1
Selenium	0.026		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:54	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:54	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:57	1
Arsenic	ND		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:57	1
Barium	0.087		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:57	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:57	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:57	1
Calcium	130		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:57	1
Chromium	0.0031		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:57	1
Cobalt	0.00078	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:57	1
Lead	0.00055	J	0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:57	1
Lithium	0.034		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:57	1
Molybdenum	0.0027	J	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:57	1
Selenium	0.0035	J	0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:57	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:57	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 15:59	1
Arsenic	0.00080	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:59	1
Barium	0.046		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:59	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:59	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:59	1
Calcium	170		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:59	1
Chromium	0.0027		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:59	1
Cobalt	0.00038	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:59	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:59	1
Lithium	0.067		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:59	1
Molybdenum	0.022		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:59	1
Selenium	0.0065		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:59	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:59	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0014	J	0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 16:02	1
Arsenic	0.0023	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 16:02	1
Barium	0.034		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 16:02	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 16:02	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:02	1
Calcium	180		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 16:02	1
Chromium	0.0055		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 16:02	1
Cobalt	0.0025		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 16:02	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 16:02	1
Lithium	0.083		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 16:02	1
Molybdenum	0.039		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 16:02	1
Selenium	0.039		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 16:02	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:02	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00062	J	0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 16:04	1
Arsenic	0.0029	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 16:04	1
Barium	0.052		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 16:04	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 16:04	1
Cadmium	0.00020	J	0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:04	1
Calcium	180		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 16:04	1
Chromium	0.013		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 16:04	1
Cobalt	0.00050	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 16:04	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 16:04	1
Lithium	0.054		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 16:04	1
Molybdenum	0.013		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 16:04	1
Selenium	0.0085		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 16:04	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:04	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 16:07	1
Arsenic	0.0038	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 16:07	1
Barium	0.045		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 16:07	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 16:07	1
Cadmium	0.00091	J	0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:07	1
Calcium	84		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 16:07	1
Chromium	0.0011	J	0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 16:07	1
Cobalt	0.00024	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 16:07	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 16:07	1
Lithium	0.031		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 16:07	1
Molybdenum	0.0057	J	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 16:07	1
Selenium	0.0055		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 16:07	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 16:07	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:08	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:10	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:12	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:14	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:16	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:18	1

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:20	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:22	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L	—	04/27/20 12:00	04/27/20 19:24	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

General Chemistry

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
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			04/27/20 18:14	1
Temperature	21.6	HF	1.0	1.0	Degrees C			04/27/20 18:14	1
Chloride	170		3.0	1.0	mg/L			05/06/20 16:34	1
Fluoride	1.4		0.50	0.17	mg/L			05/13/20 19:21	1
Sulfate	350		25	5.2	mg/L			05/06/20 16:52	5
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	1400		33	9.2	mg/L			04/27/20 10:34	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
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			04/28/20 21:49	1
Temperature	20.9	HF	1.0	1.0	Degrees C			04/28/20 21:49	1
Chloride	ND		3.0	1.0	mg/L			05/06/20 17:09	1
Fluoride	ND		0.50	0.17	mg/L			05/13/20 19:37	1
Sulfate	ND		5.0	1.0	mg/L			05/06/20 17:09	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			04/27/20 10:29	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			04/27/20 18:25	1
Temperature	21.5	HF	1.0	1.0	Degrees C			04/27/20 18:25	1
Chloride	340		15	5.1	mg/L			05/06/20 17:44	5
Fluoride	0.89		0.50	0.17	mg/L			05/13/20 21:16	1
Sulfate	780		25	5.2	mg/L			05/06/20 17:44	5
Total Dissolved Solids (TDS)	1900		40	19	mg/L			04/27/20 10:29	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			04/27/20 18:29	1
Temperature	21.4	HF	1.0	1.0	Degrees C			04/27/20 18:29	1
Chloride	340		15	5.1	mg/L			05/06/20 20:04	5
Fluoride	0.95		0.50	0.17	mg/L			05/13/20 21:32	1
Sulfate	800		25	5.2	mg/L			05/06/20 20:04	5
Total Dissolved Solids (TDS)	1900		40	19	mg/L			04/27/20 10:29	1
Total Suspended Solids	4.0		4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
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			04/27/20 18:44	1
Temperature	22.8	HF	1.0	1.0	Degrees C			04/27/20 18:44	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

General Chemistry (Continued)

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		3.0	1.0	mg/L			05/06/20 18:01	1
Fluoride	0.70		0.50	0.17	mg/L			05/13/20 21:48	1
Sulfate	220		25	5.2	mg/L			05/13/20 22:05	5
Total Dissolved Solids (TDS)	990		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	6.8		4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/27/20 18:48	1
Temperature	22.0	HF	1.0	1.0	Degrees C			04/27/20 18:48	1
Chloride	280		15	5.1	mg/L			05/06/20 21:31	5
Fluoride	1.2		0.50	0.17	mg/L			05/13/20 22:21	1
Sulfate	320		25	5.2	mg/L			05/06/20 21:31	5
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	37		4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			04/27/20 18:52	1
Temperature	21.9	HF	1.0	1.0	Degrees C			04/27/20 18:52	1
Chloride	270		15	5.1	mg/L			05/13/20 22:54	5
Fluoride	1.3		0.50	0.17	mg/L			05/13/20 22:38	1
Sulfate	380		25	5.2	mg/L			05/13/20 22:54	5
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/27/20 18:56	1
Temperature	21.5	HF	1.0	1.0	Degrees C			04/27/20 18:56	1
Chloride	260		15	5.1	mg/L			05/13/20 23:27	5
Fluoride	1.3		0.50	0.17	mg/L			05/13/20 23:10	1
Sulfate	470		25	5.2	mg/L			05/13/20 23:27	5
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			04/27/20 10:34	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			04/27/20 19:00	1
Temperature	21.6	HF	1.0	1.0	Degrees C			04/27/20 19:00	1
Chloride	140		3.0	1.0	mg/L			05/06/20 22:24	1
Fluoride	1.3		0.50	0.17	mg/L			05/13/20 23:43	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

General Chemistry (Continued)

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	200		5.0	1.0	mg/L			05/06/20 22:24	1
Total Dissolved Solids (TDS)	710		20	9.4	mg/L			04/27/20 10:29	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/27/20 10:34	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.309		0.143	0.146	1.00	0.140	pCi/L	04/30/20 11:24	05/26/20 04:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.8		40 - 110					04/30/20 11:24	05/26/20 04:46	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00222	U	0.0348	0.0348	1.00	0.0810	pCi/L	04/30/20 11:24	05/26/20 04:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.3		40 - 110					04/30/20 11:24	05/26/20 04:46	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0185	U	0.0584	0.0584	1.00	0.109	pCi/L	04/30/20 11:24	05/26/20 04:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					04/30/20 11:24	05/26/20 04:46	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0472	U	0.0516	0.0518	1.00	0.0821	pCi/L	04/30/20 11:24	05/26/20 04:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					04/30/20 11:24	05/26/20 04:46	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.295		0.112	0.115	1.00	0.125	pCi/L	04/30/20 11:24	05/26/20 04:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110					04/30/20 11:24	05/26/20 04:46	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.132		0.0722	0.0732	1.00	0.0828	pCi/L	04/30/20 11:24	05/26/20 04:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.6		40 - 110					04/30/20 11:24	05/26/20 04:48	1

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0258	U	0.0442	0.0442	1.00	0.0786	pCi/L	04/30/20 11:24	05/26/20 04:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					04/30/20 11:24	05/26/20 04:48	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.110		0.0662	0.0670	1.00	0.0797	pCi/L	04/30/20 11:24	05/26/20 04:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.5		40 - 110					04/30/20 11:24	05/26/20 04:48	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.176		0.0763	0.0779	1.00	0.0696	pCi/L	04/30/20 11:24	05/26/20 04:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					04/30/20 11:24	05/26/20 04:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.03		0.581	0.588	1.00	0.881	pCi/L	04/30/20 12:17	05/14/20 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.8		40 - 110					04/30/20 12:17	05/14/20 08:13	1
Y Carrier	87.9		40 - 110					04/30/20 12:17	05/14/20 08:13	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.278	U	0.288	0.289	1.00	0.470	pCi/L	04/30/20 12:17	05/14/20 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.3		40 - 110					04/30/20 12:17	05/14/20 08:13	1
Y Carrier	84.1		40 - 110					04/30/20 12:17	05/14/20 08:13	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.267	U	0.295	0.296	1.00	0.484	pCi/L	04/30/20 12:17	05/14/20 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					04/30/20 12:17	05/14/20 08:13	1
Y Carrier	80.7		40 - 110					04/30/20 12:17	05/14/20 08:13	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.132	U	0.209	0.209	1.00	0.352	pCi/L	04/30/20 12:17	05/14/20 08:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					04/30/20 12:17	05/14/20 08:16	1
Y Carrier	89.0		40 - 110					04/30/20 12:17	05/14/20 08:16	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.161	U	0.226	0.226	1.00	0.379	pCi/L	04/30/20 12:17	05/14/20 08:16	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110	04/30/20 12:17	05/14/20 08:16	1
Y Carrier	86.7		40 - 110	04/30/20 12:17	05/14/20 08:16	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.107	U	0.227	0.227	1.00	0.391	pCi/L	04/30/20 12:17	05/14/20 08:16	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	81.6		40 - 110	04/30/20 12:17	05/14/20 08:16	1				
Y Carrier	85.6		40 - 110	04/30/20 12:17	05/14/20 08:16	1				

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.350	U	0.283	0.285	1.00	0.451	pCi/L	04/30/20 12:17	05/14/20 08:16	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	87.3		40 - 110	04/30/20 12:17	05/14/20 08:16	1				
Y Carrier	87.9		40 - 110	04/30/20 12:17	05/14/20 08:16	1				

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.750		0.293	0.301	1.00	0.398	pCi/L	04/30/20 12:17	05/14/20 08:16	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	82.5		40 - 110	04/30/20 12:17	05/14/20 08:16	1				
Y Carrier	85.6		40 - 110	04/30/20 12:17	05/14/20 08:16	1				

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.416		0.257	0.260	1.00	0.389	pCi/L	04/30/20 12:17	05/14/20 08:16	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	86.7		40 - 110	04/30/20 12:17	05/14/20 08:16	1				
Y Carrier	85.6		40 - 110	04/30/20 12:17	05/14/20 08:16	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-7
Date Collected: 04/22/20 08:40
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.33		0.598	0.606	5.00	0.881	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-7EB
Date Collected: 04/22/20 09:05
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.276	U	0.290	0.291	5.00	0.470	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-10
Date Collected: 04/22/20 11:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.286	U	0.301	0.302	5.00	0.484	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-10D
Date Collected: 04/22/20 11:35
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.179	U	0.215	0.215	5.00	0.352	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-13
Date Collected: 04/21/20 13:55
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.456		0.252	0.254	5.00	0.379	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-14
Date Collected: 04/22/20 09:50
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.239	U	0.238	0.239	5.00	0.391	pCi/L		05/26/20 09:18	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Client Sample ID: MW-15
Date Collected: 04/22/20 13:00
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.376	U	0.286	0.288	5.00	0.451	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-16
Date Collected: 04/22/20 14:30
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.860		0.300	0.308	5.00	0.398	pCi/L		05/26/20 09:18	1

Client Sample ID: MW-17
Date Collected: 04/22/20 15:45
Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.591		0.268	0.271	5.00	0.389	pCi/L		05/26/20 09:18	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-432227/1-A
Matrix: Water
Analysis Batch: 432688

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432227

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 16:24	1

Lab Sample ID: LCS 240-432227/2-A
Matrix: Water
Analysis Batch: 432688

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432227

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.00		mg/L		100	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-432227/1-A
Matrix: Water
Analysis Batch: 432581

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432227

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/27/20 14:00	04/28/20 14:55	1
Arsenic	ND		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 14:55	1
Barium	ND		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 14:55	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 14:55	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 14:55	1
Calcium	ND		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 14:55	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 14:55	1
Cobalt	ND		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 14:55	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 14:55	1
Lithium	ND		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 14:55	1
Molybdenum	ND		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 14:55	1
Selenium	ND		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 14:55	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 14:55	1

Lab Sample ID: LCS 240-432227/3-A
Matrix: Water
Analysis Batch: 432581

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432227

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.101		mg/L		101	80 - 120
Arsenic	1.00	0.945		mg/L		95	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	0.500	0.503		mg/L		101	80 - 120
Cadmium	0.500	0.482		mg/L		96	80 - 120
Calcium	25.0	24.9		mg/L		100	80 - 120
Chromium	0.500	0.515		mg/L		103	80 - 120
Cobalt	0.500	0.501		mg/L		100	80 - 120
Lead	0.500	0.507		mg/L		101	80 - 120
Lithium	0.500	0.473		mg/L		95	80 - 120
Molybdenum	0.500	0.500		mg/L		100	80 - 120
Selenium	1.00	0.932		mg/L		93	80 - 120
Thallium	1.00	0.958		mg/L		96	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-432228/1-A
Matrix: Water
Analysis Batch: 432367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432228

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	L	0.20	0.13	ug/L		04/27/20 12:00	04/27/20 18:29	1

Lab Sample ID: LCS 240-432228/2-A
Matrix: Water
Analysis Batch: 432367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432228

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.88		ug/L		98	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-493033/4
Matrix: Water
Analysis Batch: 493033

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

Lab Sample ID: LCS 280-493155/4
Matrix: Water
Analysis Batch: 493155

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 280-493851/6
Matrix: Water
Analysis Batch: 493851

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			05/06/20 12:18	1
Sulfate	ND		5.0	1.0	mg/L			05/06/20 12:18	1

Lab Sample ID: LCS 280-493851/4
Matrix: Water
Analysis Batch: 493851

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.2		mg/L		96	90 - 110
Sulfate	100	95.0		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-493851/5
Matrix: Water
Analysis Batch: 493851

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	96.1		mg/L		96	90 - 110	0	10
Sulfate	100	94.6		mg/L		95	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Lab Sample ID: MRL 280-493851/3

Matrix: Water

Analysis Batch: 493851

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	4.60		mg/L		92	50 - 150
Sulfate	5.00	4.21	J	mg/L		84	50 - 150

Lab Sample ID: 280-135835-4 MS

Matrix: Water

Analysis Batch: 493851

Client Sample ID: MW-10D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	340		250	599		mg/L		102	80 - 120
Sulfate	800		250	1040	E	mg/L		96	80 - 120

Lab Sample ID: 280-135835-4 MSD

Matrix: Water

Analysis Batch: 493851

Client Sample ID: MW-10D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	340		250	600		mg/L		102	80 - 120	0	20
Sulfate	800		250	1040	E	mg/L		97	80 - 120	0	20

Lab Sample ID: 280-135835-4 DU

Matrix: Water

Analysis Batch: 493851

Client Sample ID: MW-10D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	340		339		mg/L		1	15
Sulfate	800		758		mg/L		5	15

Lab Sample ID: MB 280-494690/13

Matrix: Water

Analysis Batch: 494690

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			05/13/20 15:55	1
Fluoride	ND		0.50	0.17	mg/L			05/13/20 15:55	1
Sulfate	ND		5.0	1.0	mg/L			05/13/20 15:55	1

Lab Sample ID: LCS 280-494690/11

Matrix: Water

Analysis Batch: 494690

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.9		mg/L		97	90 - 110
Fluoride	5.00	4.70		mg/L		94	90 - 110
Sulfate	100	95.0		mg/L		95	90 - 110

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Lab Sample ID: LCSD 280-494690/12

Matrix: Water

Analysis Batch: 494690

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	96.9		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.72		mg/L		94	90 - 110	0	10
Sulfate	100	95.2		mg/L		95	90 - 110	0	10

Lab Sample ID: MRL 280-494690/10

Matrix: Water

Analysis Batch: 494690

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.00	4.05		mg/L		81	50 - 150		
Fluoride	0.500	0.426	J	mg/L		85	50 - 150		
Sulfate	5.00	4.33	J	mg/L		87	50 - 150		

Lab Sample ID: 280-135835-2 MS

Matrix: Water

Analysis Batch: 494690

Client Sample ID: MW-7EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		50.0	48.2		mg/L		96	80 - 120		
Fluoride	ND		5.00	4.67		mg/L		93	80 - 120		
Sulfate	ND		50.0	47.2		mg/L		94	80 - 120		

Lab Sample ID: 280-135835-2 MSD

Matrix: Water

Analysis Batch: 494690

Client Sample ID: MW-7EB

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	48.5		mg/L		97	80 - 120	1	20
Fluoride	ND		5.00	4.68		mg/L		94	80 - 120	0	20
Sulfate	ND		50.0	47.4		mg/L		95	80 - 120	1	20

Lab Sample ID: 280-135835-2 DU

Matrix: Water

Analysis Batch: 494690

Client Sample ID: MW-7EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		ND		mg/L				NC	15
Fluoride	ND		ND		mg/L				NC	15
Sulfate	ND		ND		mg/L				NC	15

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

Lab Sample ID: MB 280-492884/1

Matrix: Water

Analysis Batch: 492884

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			04/27/20 10:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Lab Sample ID: LCS 280-492884/2
Matrix: Water
Analysis Batch: 492884

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	93 - 110

Lab Sample ID: LCSD 280-492884/3
Matrix: Water
Analysis Batch: 492884

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	496		mg/L		99	93 - 110	2	20

Lab Sample ID: 280-135835-1 DU
Matrix: Water
Analysis Batch: 492884

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	1200		1250		mg/L		3	10

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

Lab Sample ID: MB 280-492887/1
Matrix: Water
Analysis Batch: 492887

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			04/27/20 10:34	1

Lab Sample ID: LCS 280-492887/2
Matrix: Water
Analysis Batch: 492887

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	90.4		mg/L		90	79 - 114

Lab Sample ID: LCSD 280-492887/3
Matrix: Water
Analysis Batch: 492887

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	91.6		mg/L		92	79 - 114	1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469240/18-A
Matrix: Water
Analysis Batch: 471221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469240

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.008158	U	0.0425	0.0425	1.00	0.0859	pCi/L	04/30/20 11:24	05/26/20 04:49	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-469240/18-A
Matrix: Water
Analysis Batch: 471221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469240

	MB	MB									
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	92.2		40 - 110		04/30/20 11:24	05/26/20 04:49	1				

Lab Sample ID: LCS 160-469240/1-A
Matrix: Water
Analysis Batch: 471221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469240

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226		11.3	10.26		1.08	1.00	0.0789	pCi/L	90	75 - 125		

	LCS	LCS		
Carrier	%Yield	Qualifier	Limits	
Ba Carrier	78.6		40 - 110	

Lab Sample ID: LCSD 160-469240/2-A
Matrix: Water
Analysis Batch: 471221

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469240

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226		11.3	10.35		1.08	1.00	0.0846	pCi/L	91	75 - 125	0.05	1

	LCSD	LCSD		
Carrier	%Yield	Qualifier	Limits	
Ba Carrier	81.6		40 - 110	

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469242/18-A
Matrix: Water
Analysis Batch: 470395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469242

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1087	U	0.234	0.234	1.00	0.400	pCi/L	04/30/20 12:17	05/14/20 08:17	1

	MB	MB									
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	92.2		40 - 110		04/30/20 12:17	05/14/20 08:17	1				
Y Carrier	90.5		40 - 110		04/30/20 12:17	05/14/20 08:17	1				

Lab Sample ID: LCS 160-469242/1-A
Matrix: Water
Analysis Batch: 470411

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469242

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228		8.84	9.801		1.18	1.00	0.489	pCi/L	111	75 - 125		

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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

Lab Sample ID: LCS 160-469242/1-A
Matrix: Water
Analysis Batch: 470411

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469242

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	78.6		40 - 110
Y Carrier	90.8		40 - 110

Lab Sample ID: LCSD 160-469242/2-A
Matrix: Water
Analysis Batch: 470411

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469242

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.84	9.231		1.12	1.00	0.476	pCi/L	104	75 - 125	0.25	1

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	81.6		40 - 110
Y Carrier	87.9		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Metals

Prep Batch: 432227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total Recoverable	Water	3005A	
280-135835-2	MW-7EB	Total Recoverable	Water	3005A	
280-135835-3	MW-10	Total Recoverable	Water	3005A	
280-135835-4	MW-10D	Total Recoverable	Water	3005A	
280-135835-5	MW-13	Total Recoverable	Water	3005A	
280-135835-6	MW-14	Total Recoverable	Water	3005A	
280-135835-7	MW-15	Total Recoverable	Water	3005A	
280-135835-8	MW-16	Total Recoverable	Water	3005A	
280-135835-9	MW-17	Total Recoverable	Water	3005A	
MB 240-432227/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-432227/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-432227/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 432228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	7470A	
280-135835-2	MW-7EB	Total/NA	Water	7470A	
280-135835-3	MW-10	Total/NA	Water	7470A	
280-135835-4	MW-10D	Total/NA	Water	7470A	
280-135835-5	MW-13	Total/NA	Water	7470A	
280-135835-6	MW-14	Total/NA	Water	7470A	
280-135835-7	MW-15	Total/NA	Water	7470A	
280-135835-8	MW-16	Total/NA	Water	7470A	
280-135835-9	MW-17	Total/NA	Water	7470A	
MB 240-432228/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-432228/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 432367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	7470A	432228
280-135835-2	MW-7EB	Total/NA	Water	7470A	432228
280-135835-3	MW-10	Total/NA	Water	7470A	432228
280-135835-4	MW-10D	Total/NA	Water	7470A	432228
280-135835-5	MW-13	Total/NA	Water	7470A	432228
280-135835-6	MW-14	Total/NA	Water	7470A	432228
280-135835-7	MW-15	Total/NA	Water	7470A	432228
280-135835-8	MW-16	Total/NA	Water	7470A	432228
280-135835-9	MW-17	Total/NA	Water	7470A	432228
MB 240-432228/1-A	Method Blank	Total/NA	Water	7470A	432228
LCS 240-432228/2-A	Lab Control Sample	Total/NA	Water	7470A	432228

Analysis Batch: 432581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total Recoverable	Water	6020A	432227
280-135835-2	MW-7EB	Total Recoverable	Water	6020A	432227
280-135835-3	MW-10	Total Recoverable	Water	6020A	432227
280-135835-4	MW-10D	Total Recoverable	Water	6020A	432227
280-135835-5	MW-13	Total Recoverable	Water	6020A	432227
280-135835-6	MW-14	Total Recoverable	Water	6020A	432227
280-135835-7	MW-15	Total Recoverable	Water	6020A	432227
280-135835-8	MW-16	Total Recoverable	Water	6020A	432227

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Metals (Continued)

Analysis Batch: 432581 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-9	MW-17	Total Recoverable	Water	6020A	432227
MB 240-432227/1-A	Method Blank	Total Recoverable	Water	6020A	432227
LCS 240-432227/3-A	Lab Control Sample	Total Recoverable	Water	6020A	432227

Analysis Batch: 432688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total Recoverable	Water	6010C	432227
280-135835-2	MW-7EB	Total Recoverable	Water	6010C	432227
280-135835-3	MW-10	Total Recoverable	Water	6010C	432227
280-135835-4	MW-10D	Total Recoverable	Water	6010C	432227
280-135835-5	MW-13	Total Recoverable	Water	6010C	432227
280-135835-6	MW-14	Total Recoverable	Water	6010C	432227
280-135835-7	MW-15	Total Recoverable	Water	6010C	432227
280-135835-8	MW-16	Total Recoverable	Water	6010C	432227
280-135835-9	MW-17	Total Recoverable	Water	6010C	432227
MB 240-432227/1-A	Method Blank	Total Recoverable	Water	6010C	432227
LCS 240-432227/2-A	Lab Control Sample	Total Recoverable	Water	6010C	432227

General Chemistry

Analysis Batch: 492884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	SM 2540C	
280-135835-2	MW-7EB	Total/NA	Water	SM 2540C	
280-135835-3	MW-10	Total/NA	Water	SM 2540C	
280-135835-4	MW-10D	Total/NA	Water	SM 2540C	
280-135835-5	MW-13	Total/NA	Water	SM 2540C	
280-135835-6	MW-14	Total/NA	Water	SM 2540C	
280-135835-7	MW-15	Total/NA	Water	SM 2540C	
280-135835-8	MW-16	Total/NA	Water	SM 2540C	
280-135835-9	MW-17	Total/NA	Water	SM 2540C	
MB 280-492884/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-492884/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-492884/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-135835-1 DU	MW-7	Total/NA	Water	SM 2540C	

Analysis Batch: 492887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	SM 2540D	
280-135835-2	MW-7EB	Total/NA	Water	SM 2540D	
280-135835-3	MW-10	Total/NA	Water	SM 2540D	
280-135835-4	MW-10D	Total/NA	Water	SM 2540D	
280-135835-5	MW-13	Total/NA	Water	SM 2540D	
280-135835-6	MW-14	Total/NA	Water	SM 2540D	
280-135835-7	MW-15	Total/NA	Water	SM 2540D	
280-135835-8	MW-16	Total/NA	Water	SM 2540D	
280-135835-9	MW-17	Total/NA	Water	SM 2540D	
MB 280-492887/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-492887/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-492887/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

General Chemistry

Analysis Batch: 493033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	9040B	
280-135835-3	MW-10	Total/NA	Water	9040B	
280-135835-4	MW-10D	Total/NA	Water	9040B	
280-135835-5	MW-13	Total/NA	Water	9040B	
280-135835-6	MW-14	Total/NA	Water	9040B	
280-135835-7	MW-15	Total/NA	Water	9040B	
280-135835-8	MW-16	Total/NA	Water	9040B	
280-135835-9	MW-17	Total/NA	Water	9040B	
LCS 280-493033/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 493155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-2	MW-7EB	Total/NA	Water	9040B	
LCS 280-493155/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 493851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	9056A	
280-135835-1	MW-7	Total/NA	Water	9056A	
280-135835-2	MW-7EB	Total/NA	Water	9056A	
280-135835-3	MW-10	Total/NA	Water	9056A	
280-135835-4	MW-10D	Total/NA	Water	9056A	
280-135835-5	MW-13	Total/NA	Water	9056A	
280-135835-6	MW-14	Total/NA	Water	9056A	
280-135835-9	MW-17	Total/NA	Water	9056A	
MB 280-493851/6	Method Blank	Total/NA	Water	9056A	
LCS 280-493851/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-493851/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-493851/3	Lab Control Sample	Total/NA	Water	9056A	
280-135835-4 MS	MW-10D	Total/NA	Water	9056A	
280-135835-4 MSD	MW-10D	Total/NA	Water	9056A	
280-135835-4 DU	MW-10D	Total/NA	Water	9056A	

Analysis Batch: 494690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	9056A	
280-135835-2	MW-7EB	Total/NA	Water	9056A	
280-135835-3	MW-10	Total/NA	Water	9056A	
280-135835-4	MW-10D	Total/NA	Water	9056A	
280-135835-5	MW-13	Total/NA	Water	9056A	
280-135835-5	MW-13	Total/NA	Water	9056A	
280-135835-6	MW-14	Total/NA	Water	9056A	
280-135835-7	MW-15	Total/NA	Water	9056A	
280-135835-7	MW-15	Total/NA	Water	9056A	
280-135835-8	MW-16	Total/NA	Water	9056A	
280-135835-8	MW-16	Total/NA	Water	9056A	
280-135835-9	MW-17	Total/NA	Water	9056A	
MB 280-494690/13	Method Blank	Total/NA	Water	9056A	
LCS 280-494690/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-494690/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-494690/10	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

General Chemistry (Continued)

Analysis Batch: 494690 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-2 MS	MW-7EB	Total/NA	Water	9056A	
280-135835-2 MSD	MW-7EB	Total/NA	Water	9056A	
280-135835-2 DU	MW-7EB	Total/NA	Water	9056A	

Rad

Prep Batch: 469240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	PrecSep-21	
280-135835-2	MW-7EB	Total/NA	Water	PrecSep-21	
280-135835-3	MW-10	Total/NA	Water	PrecSep-21	
280-135835-4	MW-10D	Total/NA	Water	PrecSep-21	
280-135835-5	MW-13	Total/NA	Water	PrecSep-21	
280-135835-6	MW-14	Total/NA	Water	PrecSep-21	
280-135835-7	MW-15	Total/NA	Water	PrecSep-21	
280-135835-8	MW-16	Total/NA	Water	PrecSep-21	
280-135835-9	MW-17	Total/NA	Water	PrecSep-21	
MB 160-469240/18-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469240/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469240/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135835-1	MW-7	Total/NA	Water	PrecSep_0	
280-135835-2	MW-7EB	Total/NA	Water	PrecSep_0	
280-135835-3	MW-10	Total/NA	Water	PrecSep_0	
280-135835-4	MW-10D	Total/NA	Water	PrecSep_0	
280-135835-5	MW-13	Total/NA	Water	PrecSep_0	
280-135835-6	MW-14	Total/NA	Water	PrecSep_0	
280-135835-7	MW-15	Total/NA	Water	PrecSep_0	
280-135835-8	MW-16	Total/NA	Water	PrecSep_0	
280-135835-9	MW-17	Total/NA	Water	PrecSep_0	
MB 160-469242/18-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469242/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469242/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-7

Date Collected: 04/22/20 08:40

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-1

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	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:00	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:42	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:08	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:14	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	493851	05/06/20 16:34	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	493851	05/06/20 16:52	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 19:21	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	30 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			500.04 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			500.04 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470411	05/14/20 08:13	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Client Sample ID: MW-7EB

Date Collected: 04/22/20 09:05

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-2

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	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:04	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:44	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:10	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:49	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	493851	05/06/20 17:09	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 19:37	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.29 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.29 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470411	05/14/20 08:13	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-10

Date Collected: 04/22/20 11:30

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-3

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	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:08	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:47	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:12	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:25	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	493851	05/06/20 17:44	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 21:16	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.16 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.16 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470411	05/14/20 08:13	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Client Sample ID: MW-10D

Date Collected: 04/22/20 11:35

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:13	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:54	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:14	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:29	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	493851	05/06/20 20:04	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 21:32	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.05 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.05 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-13

Date Collected: 04/21/20 13:55

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:18	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:57	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:16	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:44	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	493851	05/06/20 18:01	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 21:48	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	494690	05/13/20 22:05	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.16 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:46	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.16 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Client Sample ID: MW-14

Date Collected: 04/22/20 09:50

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-6

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	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:30	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 15:59	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:18	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:48	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	493851	05/06/20 21:31	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 22:21	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.11 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:48	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.11 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-15

Date Collected: 04/22/20 13:00

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-7

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	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:35	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 16:02	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:20	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:52	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 22:38	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	494690	05/13/20 22:54	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.12 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:48	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.12 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Client Sample ID: MW-16

Date Collected: 04/22/20 14:30

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:40	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 16:04	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:22	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 18:56	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 23:10	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	494690	05/13/20 23:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:48	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Client Sample ID: MW-17

Date Collected: 04/22/20 15:45

Date Received: 04/23/20 08:07

Lab Sample ID: 280-135835-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 18:44	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432581	04/28/20 16:07	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432228	04/27/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432367	04/27/20 19:24	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 19:00	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	493851	05/06/20 22:24	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494690	05/13/20 23:43	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	492884	04/27/20 10:29	FRG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492887	04/27/20 10:34	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.29 mL	1.0 g	469240	04/30/20 11:24	RJD	TAL SL
Total/NA	Analysis	9315		1			471221	05/26/20 04:48	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.29 mL	1.0 g	469242	04/30/20 12:17	RJD	TAL SL
Total/NA	Analysis	9320		1			470395	05/14/20 08:16	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471225	05/26/20 09:18	SMP	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
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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	01-08-21

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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

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	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

[illegible]

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Bandy, Darlene F	Carrier Tracking No(s): 280-521993.1
Shipping/Receiving		E-Mail: darlene.bandy@testamericainc.com	Page: Page 1 of 1
Company TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon	
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Job #: 280-135835-1	
Project Name: Xcel Energy GW CCR Monitoring - Cherokee Site: Xcel Energy CCR - Cherokee Station		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 Other: 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)	
Due Date Requested: 5/19/2020		Analysis Requested	
TAT Requested (days):		Total Number of containers	
PO #:		Field Filtered Sample (Yes or No)	
WO #:		Perform MS/MSD (Yes or No)	
Project #: 28014371		9315_Ra226/PreSep_21 Radium-226 - 1/3 - SUB	
SSOW#:		9320_Ra228/PreSep_0 Radium-228 - 2/3 - SUB	
Sample Date		Ra226Ra228_GFPIC (MOD) Local Method	
Sample Time		Sample Type (C=comp, G=grab)	
Sample Identification - Client ID (Lab ID)		Matrix (W=water, S=solid, O=other)	
MW-7 (280-135835-1)		Water	
MW-7EB (280-135835-2)		Water	
MW-10 (280-135835-3)		Water	
MW-10D (280-135835-4)		Water	
MW-13 (280-135835-5)		Water	
MW-14 (280-135835-6)		Water	
MW-15 (280-135835-7)		Water	
MW-16 (280-135835-8)		Water	
MW-17 (280-135835-9)		Water	
Special Instructions/Note:		Special Instructions/Note:	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our 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/test/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 compliance 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)		Special Instructions/QC Requirements:	
Primary Deliverable Rank: 4		Method of Shipment:	
Date:		Date/Time:	
Relinquished by: <i>Jul B...</i>		Company	
Relinquished by: <i>FE</i>		Company	
Relinquished by:		Company	
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	
Δ Yes Δ No			

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Shipping/Receiving		Phone:	Bandy, Darlene F		280-521992.1
Company:		E-Mail:		State of Origin:	Page:
TestAmerica Laboratories, Inc.		darlene.bandy@testamericainc.com		Colorado	Page 1 of 1
Address:		Accreditations Required (See note):		Job #:	
4101 Shuffel Street NW,		NELAP - Oregon		280-135835-1	
City:	North Canton	Due Date Requested:	Analysis Requested		
State, Zip:	OH, 44720	5/15/2020			
Phone:	330-497-9396(Tel) 330-497-0772(Fax)	TAT Requested (days):			
Email:					
Project Name:	Xcel Energy GW CCR Monitoring - Cherokee	PO #:			
Site:	Xcel Energy CCR - Cherokee Station	WO #:			
		Project #:			
		28014371			
		SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Sealed, On-site)	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:
MW-7 (280-135835-1)	4/22/20	08:40 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-7EB (280-135835-2)	4/22/20	09:05 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-10 (280-135835-3)	4/22/20	11:30 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-10D (280-135835-4)	4/22/20	11:35 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-13 (280-135835-5)	4/21/20	13:55 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-14 (280-135835-6)	4/22/20	09:50 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-15 (280-135835-7)	4/22/20	13:00 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-16 (280-135835-8)	4/22/20	14:30 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell
MW-17 (280-135835-9)	4/22/20	15:45 Mountain	Water	Water	X	X	X	X	X	2	Use Collision Cell

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
Other:
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2SO4
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Special Instructions/Note:
S13

Note: Since laboratory accreditation is subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our 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/test/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 compliance to Eurofins TestAmerica.

Possible Hazard Identification	
Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Deliverable Requested: I, II, III, IV, Other (specify)	Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months
Special Instructions/QC Requirements:	
Method of Shipment:	
Date:	Time:
Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>
Date/Time: 4/24/2020 13:55	Date/Time: 4-25-20 940
Relinquished by:	Received by:
Date/Time:	Date/Time:
Relinquished by:	Received by:
Date/Time:	Date/Time:
Custody Seal No.: ☐ Yes ☐ No	Cooler Temperature(s) °C and Other Remarks:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : _____

Client ETA Denver

Site Name _____

Cooler unpacked by: [Signature]

Cooler Received on 4-25-20

Opened on 4-25-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other [Signature]

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

Storage Location _____

TestAmerica Cooler # 777 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-10 (CF +0.7 °C) Observed Cooler Temp. 11.0 °C Corrected Cooler Temp. 11.7 °C
 IR GUN #IR-11 (CF +0.9 °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 NA
 -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 be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 16. 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 _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. 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)

19. 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: 280-135835-1

Login Number: 135835

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Lubin, Julius C

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Not present - client dropped samples off.
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.	N/A	
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 $<6\text{mm}$ (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: 280-135835-1

Login Number: 135835

List Number: 3

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 04/27/20 11:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-135835-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)		
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-135835-1	MW-7	89.8
280-135835-2	MW-7EB	81.3
280-135835-3	MW-10	93.4
280-135835-4	MW-10D	97.3
280-135835-5	MW-13	81.0
280-135835-6	MW-14	81.6
280-135835-7	MW-15	87.3
280-135835-8	MW-16	82.5
280-135835-9	MW-17	86.7
LCS 160-469240/1-A	Lab Control Sample	78.6
LCSD 160-469240/2-A	Lab Control Sample Dup	81.6
MB 160-469240/18-A	Method Blank	92.2
Tracer/Carrier Legend		
Ba Carrier = Ba Carrier		

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)			
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-135835-1	MW-7	89.8	87.9
280-135835-2	MW-7EB	81.3	84.1
280-135835-3	MW-10	93.4	80.7
280-135835-4	MW-10D	97.3	89.0
280-135835-5	MW-13	81.0	86.7
280-135835-6	MW-14	81.6	85.6
280-135835-7	MW-15	87.3	87.9
280-135835-8	MW-16	82.5	85.6
280-135835-9	MW-17	86.7	85.6
LCS 160-469242/1-A	Lab Control Sample	78.6	90.8
LCSD 160-469242/2-A	Lab Control Sample Dup	81.6	87.9
MB 160-469242/18-A	Method Blank	92.2	90.5
Tracer/Carrier Legend			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

ANALYTICAL REPORT

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

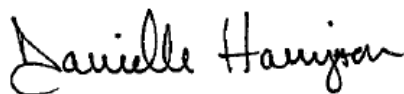
Laboratory Job ID: 280-142103-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Cherokee

For:

HDR Inc
1670 Broadway, Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
12/29/2020 9:06:36 AM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@Eurofinset.com

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

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

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

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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.
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
F1	MS and/or MSD recovery exceeds control limits.
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
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Eurofins TestAmerica, Denver

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Job ID: 280-142103-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Cherokee

Report Number: 280-142103-1

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

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

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

RECEIPT

The samples were received on 10/29/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 2.0° C and 3.6° C.

TOTAL RECOVERABLE METALS - METHOD 6010C/6020A

The accuracy and precision of the Calcium MS/MSD performed on a sample MW-10 (280-142103-1) 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 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 or prepped at a dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

MS/MSD analyses were performed on sample MW-10 (280-142103-1). The MS/MSD for Fluoride 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.

Please note that the recoveries, for the Sulfate 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.

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 LCS recovered at (69%) for RAD-226. The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (65-112%) per method requirements. Although there is a qualifier, the LCS passes. No further action is

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Job ID: 280-142103-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

required.

The LCSD 160-488436/2-A has an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.07) for Ra226. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (29%). The data have been reported with this narrative.

The following sample has a barium carrier recovery above the 110% QC limit. Affected samples had a barium correction applied, however, there is significant concentrations of salt-like compounds (i.e. calcium, magnesium, sodium, and strontium) that can interfere with a barium sulfate recovery. The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. MW-10 (280-142103-1)

The following sample was prepared at a reduced aliquot due to brown discoloration and a cloudy appearance: MW-14 (280-142103-4).

Insufficient sample volume was available to perform a sample duplicate. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

RADIUM-228- METHOD 9320

Radium-228 was detected in method blank MB 160-488437/24-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. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The LCS recovered at (72%) for Ra228. The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of 60-140% per method requirements. Although there is a qualifier, the LCS passes. No further action is required

The Barium carrier recovery is outside the upper control limit (110%): MW-10 (280-142103-1). Affected samples had a barium correction applied, however, there was physical evidence of matrix interference apparent during the initial preparation of the sample. The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported.

The following sample was prepared at a reduced aliquot due to brown discoloration and a cloudy appearance: MW-14 (280-142103-4).

Insufficient sample volume was available to perform a sample duplicate. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-10

Lab Sample ID: 280-142103-1

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	0.00081	J	0.0020	0.00057	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0018	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.060		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.00024	J	0.0010	0.00020	mg/L	1		6020A	Total
									Recoverable
Calcium	290		1.0	0.58	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0026		0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.0063		0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.092		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.083		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.015		0.0050	0.00089	mg/L	1		6020A	Total
									Recoverable
Thallium	0.00033	J	0.0010	0.00020	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	8.1	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	350		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.4	F1	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	850		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2300		50	24	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-10D

Lab Sample ID: 280-142103-2

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	0.00083	J	0.0020	0.00057	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0018	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.057		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Beryllium	0.00046	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	280		1.0	0.58	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0025		0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.0059		0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.087		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.078		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-10D (Continued)

Lab Sample ID: 280-142103-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.015		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00050	J	0.0010	0.00020	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	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	350		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	860		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2200		33	16	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-13

Lab Sample ID: 280-142103-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.59		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.074		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0025		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.00046	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	0.0033	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00023	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	160		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.95		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	180		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1000		33	16	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-14

Lab Sample ID: 280-142103-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.0014	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0057		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.11		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Cadmium	0.0022		0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	300		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-14 (Continued)

Lab Sample ID: 280-142103-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.010		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0054		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.0047		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.12		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.027		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0050		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00020	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	780		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	950		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	3300		17	7.8	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	71		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-15

Lab Sample ID: 280-142103-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.5		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.0013	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0023	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.10		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Cadmium	0.00026	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Calcium	650		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0066		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Cobalt	0.0044		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lithium	0.15		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Molybdenum	0.041		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.029		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	1000		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.90		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1800		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	5000		67	31	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-16

Lab Sample ID: 280-142103-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.92		0.10	0.023	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00057	J	0.0020	0.00057	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0030	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.055		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.00052	J	0.0010	0.00020	mg/L	1		6020A	Total
									Recoverable
Calcium	270		1.0	0.58	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00097	J	0.0010	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	0.096		0.0080	0.0017	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0098	J	0.010	0.0011	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0063		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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	430		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	910		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2500		67	31	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-16EB

Lab Sample ID: 280-142103-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	5.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	45		25	12	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-17

Lab Sample ID: 280-142103-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.58		0.10	0.023	mg/L	1		6010C	Total
									Recoverable
Arsenic	0.0039	J	0.0050	0.00075	mg/L	1		6020A	Total
									Recoverable
Barium	0.068		0.0050	0.0022	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.0013		0.0010	0.00020	mg/L	1		6020A	Total
									Recoverable
Calcium	140		1.0	0.58	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00050	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	0.015		0.010	0.0011	mg/L	1		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-17 (Continued)

Lab Sample ID: 280-142103-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.0052		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	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	190		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	360		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	8.0	J	10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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: 280-142103-1

Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142103-1	MW-10	Ground Water	10/27/20 15:30	10/29/20 09:30	
280-142103-2	MW-10D	Ground Water	10/27/20 15:30	10/29/20 09:30	
280-142103-3	MW-13	Water	10/27/20 13:40	10/29/20 09:30	
280-142103-4	MW-14	Water	10/28/20 14:00	10/29/20 09:30	
280-142103-5	MW-15	Water	10/27/20 16:55	10/29/20 09:30	
280-142103-6	MW-16	Water	10/28/20 11:20	10/29/20 09:30	
280-142103-7	MW-16EB	Water	10/28/20 11:40	10/29/20 09:30	
280-142103-8	MW-17	Water	10/28/20 13:00	10/29/20 09:30	

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.8		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 18:32	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.7		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 18:54	1

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.59		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 18:58	1

Client Sample ID: MW-14
Date Collected: 10/28/20 14:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 19:03	1

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.5		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 19:07	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.92		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 19:12	1

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 19:16	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.58		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 19:20	1

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

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00081	J	0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 22:58	1
Arsenic	0.0018	J	0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 22:58	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.060		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 22:58	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 22:58	1
Cadmium	0.00024	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 22:58	1
Calcium	290		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 22:58	1
Chromium	0.0026		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 22:58	1
Cobalt	0.0063		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 22:58	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 22:58	1
Lithium	0.092		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 22:58	1
Molybdenum	0.083		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 22:58	1
Selenium	0.015		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 22:58	1
Thallium	0.00033	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 22:58	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00083	J	0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:17	1
Arsenic	0.0018	J	0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:17	1
Barium	0.057		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:17	1
Beryllium	0.00046	J	0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:17	1
Cadmium	0.00025	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:17	1
Calcium	280		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:17	1
Chromium	0.0025		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:17	1
Cobalt	0.0059		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:17	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:17	1
Lithium	0.087		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:17	1
Molybdenum	0.078		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:17	1
Selenium	0.015		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:17	1
Thallium	0.00050	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:17	1

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:20	1
Arsenic	ND		0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:20	1
Barium	0.074		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:20	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:20	1
Cadmium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:20	1
Calcium	130		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:20	1
Chromium	0.0025		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:20	1
Cobalt	0.00046	J	0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:20	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:20	1
Lithium	0.038		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:20	1
Molybdenum	0.0030	J	0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:20	1
Selenium	0.0033	J	0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:20	1
Thallium	0.00023	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:20	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-14
Date Collected: 10/28/20 14:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0014	J	0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:22	1
Arsenic	0.0057		0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:22	1
Barium	0.11		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:22	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:22	1
Cadmium	0.0022		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:22	1
Calcium	300		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:22	1
Chromium	0.010		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:22	1
Cobalt	0.0054		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:22	1
Lead	0.0047		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:22	1
Lithium	0.12		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:22	1
Molybdenum	0.027		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:22	1
Selenium	0.0050		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:22	1
Thallium	0.00020	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:22	1

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0013	J	0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:25	1
Arsenic	0.0023	J	0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:25	1
Barium	0.10		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:25	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:25	1
Cadmium	0.00026	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:25	1
Calcium	650		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:25	1
Chromium	0.0066		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:25	1
Cobalt	0.0044		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:25	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:25	1
Lithium	0.15		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:25	1
Molybdenum	0.041		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:25	1
Selenium	0.029		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:25	1
Thallium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:25	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00057	J	0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:27	1
Arsenic	0.0030	J	0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:27	1
Barium	0.055		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:27	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:27	1
Cadmium	0.00052	J	0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:27	1
Calcium	270		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:27	1
Chromium	ND		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:27	1
Cobalt	0.00097	J	0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:27	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:27	1
Lithium	0.096		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:27	1
Molybdenum	0.0098	J	0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:27	1
Selenium	0.0063		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:27	1
Thallium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:27	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:30	1
Arsenic	ND		0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:30	1
Barium	ND		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:30	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:30	1
Cadmium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:30	1
Calcium	ND		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:30	1
Chromium	ND		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:30	1
Cobalt	ND		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:30	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:30	1
Lithium	ND		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:30	1
Molybdenum	ND		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:30	1
Selenium	ND		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:30	1
Thallium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:30	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 23:32	1
Arsenic	0.0039	J	0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 23:32	1
Barium	0.068		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 23:32	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 23:32	1
Cadmium	0.0013		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:32	1
Calcium	140		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 23:32	1
Chromium	0.0015	J	0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 23:32	1
Cobalt	0.00050	J	0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 23:32	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 23:32	1
Lithium	0.030		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 23:32	1
Molybdenum	0.015		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 23:32	1
Selenium	0.0052		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 23:32	1
Thallium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 23:32	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:12	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:22	1

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:24	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-14
Date Collected: 10/28/20 14:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:26	1

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:28	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:30	1

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:32	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:34	1

General Chemistry

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			11/24/20 17:38	1
Temperature	20.6	HF	1.0	1.0	Degrees C			11/24/20 17:38	1
Chloride	350		30	10	mg/L			11/24/20 12:47	10
Fluoride	1.4	F1	0.50	0.17	mg/L			11/24/20 09:53	1
Sulfate	850		50	10	mg/L			11/24/20 12:47	10
Total Dissolved Solids (TDS)	2300		50	24	mg/L			11/03/20 19:47	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			11/03/20 17:19	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground 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			11/24/20 17:27	1
Temperature	21.0	HF	1.0	1.0	Degrees C			11/24/20 17:27	1
Chloride	350		30	10	mg/L			11/24/20 09:04	10
Fluoride	1.4		0.50	0.17	mg/L			11/24/20 08:47	1
Sulfate	860		50	10	mg/L			11/24/20 09:04	10
Total Dissolved Solids (TDS)	2200		33	16	mg/L			11/03/20 19:47	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			11/03/20 17:19	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

General Chemistry

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			11/24/20 17:02	1
Temperature	20.1	HF	1.0	1.0	Degrees C			11/24/20 17:02	1
Chloride	160		3.0	1.0	mg/L			11/24/20 09:20	1
Fluoride	0.95		0.50	0.17	mg/L			11/24/20 09:20	1
Sulfate	180		50	10	mg/L			11/24/20 09:37	10
Total Dissolved Solids (TDS)	1000		33	16	mg/L			11/03/20 19:47	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			11/03/20 17:19	1

Client Sample ID: MW-14
Date Collected: 10/28/20 14:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			11/24/20 16:58	1
Temperature	20.1	HF	1.0	1.0	Degrees C			11/24/20 16:58	1
Chloride	780		30	10	mg/L			11/24/20 14:08	10
Fluoride	1.8		0.50	0.17	mg/L			11/24/20 13:52	1
Sulfate	950		50	10	mg/L			11/24/20 14:08	10
Total Dissolved Solids (TDS)	3300		17	7.8	mg/L			11/03/20 19:47	1
Total Suspended Solids	71		4.0	1.1	mg/L			11/03/20 17:19	1

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
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			11/24/20 17:34	1
Temperature	20.3	HF	1.0	1.0	Degrees C			11/24/20 17:34	1
Chloride	1000		30	10	mg/L			11/24/20 14:41	10
Fluoride	0.90		0.50	0.17	mg/L			11/24/20 14:25	1
Sulfate	1800		100	21	mg/L			11/24/20 23:04	20
Total Dissolved Solids (TDS)	5000		67	31	mg/L			11/03/20 19:47	1
Total Suspended Solids	8.8		4.0	1.1	mg/L			10/30/20 07:13	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
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			11/24/20 16:52	1
Temperature	20.8	HF	1.0	1.0	Degrees C			11/24/20 16:52	1
Chloride	430		30	10	mg/L			11/24/20 15:14	10
Fluoride	1.2		0.50	0.17	mg/L			11/24/20 14:58	1
Sulfate	910		50	10	mg/L			11/24/20 15:14	10
Total Dissolved Solids (TDS)	2500		67	31	mg/L			11/03/20 19:47	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			11/03/20 17:19	1

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.9	HF	0.1	0.1	SU			11/25/20 10:42	1
Temperature	21.9	HF	1.0	1.0	Degrees C			11/25/20 10:42	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

General Chemistry (Continued)

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/24/20 16:03	1
Fluoride	ND		0.50	0.17	mg/L			11/24/20 16:03	1
Sulfate	ND		5.0	1.0	mg/L			11/24/20 16:03	1
Total Dissolved Solids (TDS)	45		25	12	mg/L			11/03/20 19:47	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			11/03/20 17:19	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
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			11/24/20 17:44	1
Temperature	21.5	HF	1.0	1.0	Degrees C			11/24/20 17:44	1
Chloride	190		3.0	1.0	mg/L			11/24/20 16:36	1
Fluoride	2.0		0.50	0.17	mg/L			11/24/20 16:36	1
Sulfate	360		50	10	mg/L			11/24/20 16:53	10
Total Dissolved Solids (TDS)	8.0	J	10	4.7	mg/L			11/03/20 19:47	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			11/03/20 17:19	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0463	U *	0.118	0.118	1.00	0.272	pCi/L	11/06/20 05:48	12/24/20 12:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	116	X	40 - 110					11/06/20 05:48	12/24/20 12:59	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0139	U *	0.224	0.224	1.00	0.442	pCi/L	11/06/20 05:48	12/24/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					11/06/20 05:48	12/24/20 12:56	1

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.289	U *	0.233	0.235	1.00	0.347	pCi/L	11/06/20 05:48	12/24/20 12:56	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Carrier

Ba Carrier

%Yield

90.3

Qualifier

Limits

40 - 110

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:56

Dil Fac

1

Client Sample ID: MW-14

Date Collected: 10/28/20 14:00

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4

Matrix: Water

Analyte

Radium-226

Result

-0.260

Qualifier

U * G

Count
Uncert.

(2σ+/-)

0.613

Total
Uncert.

(2σ+/-)

0.614

RL

1.00

MDC

1.32

Unit

pCi/L

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Carrier

Ba Carrier

%Yield

56.7

Qualifier

Limits

40 - 110

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Client Sample ID: MW-15

Date Collected: 10/27/20 16:55

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5

Matrix: Water

Analyte

Radium-226

Result

0.587

Qualifier

*

Count
Uncert.

(2σ+/-)

0.317

Total
Uncert.

(2σ+/-)

0.321

RL

1.00

MDC

0.424

Unit

pCi/L

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Carrier

Ba Carrier

%Yield

95.5

Qualifier

Limits

40 - 110

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Client Sample ID: MW-16

Date Collected: 10/28/20 11:20

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6

Matrix: Water

Analyte

Radium-226

Result

0.149

Qualifier

U *

Count
Uncert.

(2σ+/-)

0.249

Total
Uncert.

(2σ+/-)

0.249

RL

1.00

MDC

0.429

Unit

pCi/L

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Carrier

Ba Carrier

%Yield

97.9

Qualifier

Limits

40 - 110

Prepared

11/06/20 05:48

Analyzed

12/24/20 12:57

Dil Fac

1

Client Sample ID: MW-16EB

Date Collected: 10/28/20 11:40

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7

Matrix: Water

Analyte

Radium-226

Result

0.0687

Qualifier

U

Count
Uncert.

(2σ+/-)

0.219

Total
Uncert.

(2σ+/-)

0.219

RL

1.00

MDC

0.402

Unit

pCi/L

Prepared

11/06/20 05:48

Analyzed

12/24/20 13:02

Dil Fac

1

Carrier

Ba Carrier

%Yield

94.2

Qualifier

Limits

40 - 110

Prepared

11/06/20 05:48

Analyzed

12/24/20 13:02

Dil Fac

1

Client Sample ID: MW-17

Date Collected: 10/28/20 13:00

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8

Matrix: Water

Analyte

Radium-226

Result

0.314

Qualifier

U

Count
Uncert.

(2σ+/-)

0.229

Total
Uncert.

(2σ+/-)

0.231

RL

1.00

MDC

0.324

Unit

pCi/L

Prepared

11/06/20 05:48

Analyzed

12/24/20 13:02

Dil Fac

1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110	11/06/20 05:48	12/24/20 13:02	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-10

Date Collected: 10/27/20 15:30

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1

Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.369	*	0.188	0.191	1.00	0.278	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	116	X	40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	96.8		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-10D

Date Collected: 10/27/20 15:30

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2

Matrix: Ground Water

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.260	U *	0.214	0.215	1.00	0.340	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	90.1		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-13

Date Collected: 10/27/20 13:40

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3

Matrix: Water

			Count	Total						
	Result	Qualifier	Uncert.	Uncert.	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Analyte			(2σ+/-)	(2σ+/-)						
Radium-228	0.441	*	0.257	0.260	1.00	0.389	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	86.0		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-14

Date Collected: 10/28/20 14:00

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0131	U * G	0.730	0.730	1.00	1.30	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	56.7		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	90.5		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.674	*	0.232	0.240	1.00	0.320	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	108		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.884	*	0.262	0.275	1.00	0.340	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	90.8		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.217	U *	0.192	0.193	1.00	0.307	pCi/L	11/06/20 06:25	12/24/20 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.2		40 - 110					11/06/20 06:25	12/24/20 08:07	1
Y Carrier	98.3		40 - 110					11/06/20 06:25	12/24/20 08:07	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.748	*	0.259	0.268	1.00	0.351	pCi/L	11/06/20 06:25	12/24/20 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					11/06/20 06:25	12/24/20 08:08	1
Y Carrier	94.6		40 - 110					11/06/20 06:25	12/24/20 08:08	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-10
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.322		0.222	0.225	5.00	0.278	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-10D
Date Collected: 10/27/20 15:30
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.246	U	0.310	0.310	5.00	0.442	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-13
Date Collected: 10/27/20 13:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.730		0.347	0.350	5.00	0.389	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-14
Date Collected: 10/28/20 14:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.273	U	0.953	0.954	5.00	1.32	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-15
Date Collected: 10/27/20 16:55
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.26		0.393	0.401	5.00	0.424	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-16
Date Collected: 10/28/20 11:20
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.03		0.361	0.371	5.00	0.429	pCi/L		12/28/20 22:14	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Client Sample ID: MW-16EB
Date Collected: 10/28/20 11:40
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.286	U	0.291	0.292	5.00	0.402	pCi/L		12/28/20 22:14	1

Client Sample ID: MW-17
Date Collected: 10/28/20 13:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.06		0.346	0.354	5.00	0.351	pCi/L		12/28/20 22:14	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-459042/1-A
Matrix: Water
Analysis Batch: 459250

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 459042

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/03/20 14:00	11/04/20 18:04	1

Lab Sample ID: LCS 240-459042/2-A
Matrix: Water
Analysis Batch: 459250

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 459042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.06		mg/L		106	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-459042/1-A
Matrix: Water
Analysis Batch: 459611

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 459042

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/03/20 14:00	11/05/20 22:53	1
Arsenic	ND		0.0050	0.00075	mg/L		11/03/20 14:00	11/05/20 22:53	1
Barium	ND		0.0050	0.0022	mg/L		11/03/20 14:00	11/05/20 22:53	1
Beryllium	ND		0.0010	0.00031	mg/L		11/03/20 14:00	11/05/20 22:53	1
Cadmium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 22:53	1
Calcium	ND		1.0	0.58	mg/L		11/03/20 14:00	11/05/20 22:53	1
Chromium	ND		0.0020	0.00098	mg/L		11/03/20 14:00	11/05/20 22:53	1
Cobalt	ND		0.0010	0.00019	mg/L		11/03/20 14:00	11/05/20 22:53	1
Lead	ND		0.0010	0.00045	mg/L		11/03/20 14:00	11/05/20 22:53	1
Lithium	ND		0.0080	0.0017	mg/L		11/03/20 14:00	11/05/20 22:53	1
Molybdenum	ND		0.010	0.0011	mg/L		11/03/20 14:00	11/05/20 22:53	1
Selenium	ND		0.0050	0.00089	mg/L		11/03/20 14:00	11/05/20 22:53	1
Thallium	ND		0.0010	0.00020	mg/L		11/03/20 14:00	11/05/20 22:53	1

Lab Sample ID: LCS 240-459042/3-A
Matrix: Water
Analysis Batch: 459611

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 459042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0997		mg/L		100	80 - 120
Arsenic	1.00	1.02		mg/L		102	80 - 120
Barium	1.00	1.03		mg/L		103	80 - 120
Beryllium	0.500	0.528		mg/L		106	80 - 120
Cadmium	0.500	0.498		mg/L		100	80 - 120
Calcium	25.0	26.7		mg/L		107	80 - 120
Chromium	0.500	0.521		mg/L		104	80 - 120
Cobalt	0.500	0.513		mg/L		103	80 - 120
Lead	0.500	0.524		mg/L		105	80 - 120
Lithium	0.500	0.520		mg/L		104	80 - 120
Molybdenum	0.500	0.511		mg/L		102	80 - 120
Selenium	1.00	0.999		mg/L		100	80 - 120
Thallium	1.00	0.991		mg/L		99	80 - 120

Eurofins TestAmerica, Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Lab Sample ID: 280-142103-1 MS

Matrix: Ground Water

Analysis Batch: 459611

Client Sample ID: MW-10

Prep Type: Total Recoverable

Prep Batch: 459042

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.00081	J	0.100	0.103		mg/L		102	75 - 125
Arsenic	0.0018	J	1.00	1.05		mg/L		104	75 - 125
Barium	0.060		1.00	1.12		mg/L		106	75 - 125
Beryllium	ND		0.500	0.519		mg/L		104	75 - 125
Cadmium	0.00024	J	0.500	0.495		mg/L		99	75 - 125
Calcium	290		25.0	307	4	mg/L		74	75 - 125
Chromium	0.0026		0.500	0.510		mg/L		101	75 - 125
Cobalt	0.0063		0.500	0.524		mg/L		103	75 - 125
Lead	ND		0.500	0.516		mg/L		103	75 - 125
Lithium	0.092		0.500	0.622		mg/L		106	75 - 125
Molybdenum	0.083		0.500	0.623		mg/L		108	75 - 125
Selenium	0.015		1.00	0.982		mg/L		97	75 - 125
Thallium	0.00033	J	1.00	0.989		mg/L		99	75 - 125

Lab Sample ID: 280-142103-1 MSD

Matrix: Ground Water

Analysis Batch: 459611

Client Sample ID: MW-10

Prep Type: Total Recoverable

Prep Batch: 459042

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.00081	J	0.100	0.0976		mg/L		97	75 - 125	5	20
Arsenic	0.0018	J	1.00	1.03		mg/L		103	75 - 125	1	20
Barium	0.060		1.00	1.06		mg/L		100	75 - 125	5	20
Beryllium	ND		0.500	0.497		mg/L		99	75 - 125	4	20
Cadmium	0.00024	J	0.500	0.469		mg/L		94	75 - 125	5	20
Calcium	290		25.0	300	4	mg/L		47	75 - 125	2	20
Chromium	0.0026		0.500	0.486		mg/L		97	75 - 125	5	20
Cobalt	0.0063		0.500	0.512		mg/L		101	75 - 125	2	20
Lead	ND		0.500	0.495		mg/L		99	75 - 125	4	20
Lithium	0.092		0.500	0.568		mg/L		95	75 - 125	9	20
Molybdenum	0.083		0.500	0.606		mg/L		105	75 - 125	3	20
Selenium	0.015		1.00	0.962		mg/L		95	75 - 125	2	20
Thallium	0.00033	J	1.00	0.941		mg/L		94	75 - 125	5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-459045/1-A

Matrix: Water

Analysis Batch: 459212

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 459045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/03/20 12:00	11/03/20 18:01	1

Lab Sample ID: LCS 240-459045/2-A

Matrix: Water

Analysis Batch: 459212

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 459045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.90		ug/L		98	80 - 120

Eurofins TestAmerica, Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9040B - pH

Lab Sample ID: LCS 280-518121/31

Matrix: Water

Analysis Batch: 518121

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

Lab Sample ID: LCS 280-518121/5

Matrix: Water

Analysis Batch: 518121

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

Lab Sample ID: 280-142103-2 DU

Matrix: Ground Water

Analysis Batch: 518121

Client Sample ID: MW-10D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	8.0	HF	8.1		SU		0.5	5
Temperature	21.0	HF	20.3		Degrees C		4	10

Lab Sample ID: LCS 280-518178/4

Matrix: Water

Analysis Batch: 518178

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 280-517909/13

Matrix: Water

Analysis Batch: 517909

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			11/24/20 01:24	1
Fluoride	ND		0.50	0.17	mg/L			11/24/20 01:24	1
Sulfate	ND		5.0	1.0	mg/L			11/24/20 01:24	1

Lab Sample ID: LCS 280-517909/11

Matrix: Water

Analysis Batch: 517909

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.2		mg/L		95	90 - 110
Fluoride	5.00	4.75		mg/L		95	90 - 110
Sulfate	100	92.9		mg/L		93	90 - 110

Lab Sample ID: LCSD 280-517909/12

Matrix: Water

Analysis Batch: 517909

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	95.1		mg/L		95	90 - 110	0	10

Eurofins TestAmerica, Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Lab Sample ID: LCSD 280-517909/12

Matrix: Water

Analysis Batch: 517909

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.75		mg/L		95	90 - 110	0	10
Sulfate	100	93.5		mg/L		93	90 - 110	1	10

Lab Sample ID: MRL 280-517909/10

Matrix: Water

Analysis Batch: 517909

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	5.00	3.99		mg/L		80	50 - 150		
Fluoride	0.500	0.483	J	mg/L		97	50 - 150		
Sulfate	5.00	4.27	J	mg/L		85	50 - 150		

Lab Sample ID: 280-142103-1 MS

Matrix: Ground Water

Analysis Batch: 517909

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	1.4	F1	5.00	5.24	F1	mg/L		76	80 - 120		

Lab Sample ID: 280-142103-1 MS

Matrix: Ground Water

Analysis Batch: 517909

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	350		500	906		mg/L		112	80 - 120		
Sulfate	850		500	1430		mg/L		116	80 - 120		

Lab Sample ID: 280-142103-1 MSD

Matrix: Ground Water

Analysis Batch: 517909

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	1.4	F1	5.00	5.86		mg/L		89	80 - 120	11	20

Lab Sample ID: 280-142103-1 MSD

Matrix: Ground Water

Analysis Batch: 517909

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	350		500	900		mg/L		110	80 - 120	1	20
Sulfate	850		500	1420		mg/L		113	80 - 120	1	20

Lab Sample ID: 280-142103-1 DU

Matrix: Ground Water

Analysis Batch: 517909

Client Sample ID: MW-10

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	1.4	F1		1.42		mg/L				0.3	15

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Lab Sample ID: 280-142103-1 DU
Matrix: Ground Water
Analysis Batch: 517909

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	350		347		mg/L		0.4	15
Sulfate	850		852		mg/L		0.2	15

Lab Sample ID: MB 280-518080/6
Matrix: Water
Analysis Batch: 518080

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/24/20 22:48	1
Sulfate	ND		5.0	1.0	mg/L			11/24/20 22:48	1

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

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.4		mg/L		96	90 - 110
Sulfate	100	93.8		mg/L		94	90 - 110

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

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	96.7		mg/L		97	90 - 110	0	10
Sulfate	100	94.1		mg/L		94	90 - 110	0	10

Lab Sample ID: MRL 280-518080/3
Matrix: Water
Analysis Batch: 518080

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.00		mg/L		80	50 - 150
Sulfate	5.00	4.31	J	mg/L		86	50 - 150

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

Lab Sample ID: MB 280-515306/2
Matrix: Water
Analysis Batch: 515306

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			11/03/20 19:47	1

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

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	517		mg/L		103	93 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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

Lab Sample ID: MB 280-514783/1
Matrix: Water
Analysis Batch: 514783

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			10/30/20 07:13	1

Lab Sample ID: LCS 280-514783/2
Matrix: Water
Analysis Batch: 514783

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	80.0		mg/L		80	79 - 114

Lab Sample ID: MB 280-515282/3
Matrix: Water
Analysis Batch: 515282

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			11/03/20 17:19	1

Lab Sample ID: LCS 280-515282/1
Matrix: Water
Analysis Batch: 515282

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	81.6		mg/L		82	79 - 114

Lab Sample ID: LCSD 280-515282/2
Matrix: Water
Analysis Batch: 515282

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	84.8		mg/L		85	79 - 114	4	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-488436/24-A
Matrix: Water
Analysis Batch: 492984

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488436

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05400	U	0.193	0.193	1.00	0.364	pCi/L	11/06/20 05:48	12/24/20 17:16	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.2		40 - 110	11/06/20 05:48	12/24/20 17:16	1

Lab Sample ID: LCS 160-488436/1-A
Matrix: Water
Analysis Batch: 492984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488436

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	7.856	*	1.09	1.00	0.353	pCi/L	69	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9315 - Radium-226 (GFPC) (Continued)

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	100		40 - 110

Lab Sample ID: LCSD 160-488436/2-A
Matrix: Water
Analysis Batch: 492984

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 488436

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.3	10.49	*	1.38	1.00	0.419	pCi/L	92	75 - 125	1.07	1

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.6		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-488437/24-A
Matrix: Water
Analysis Batch: 492984

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488437

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4554		0.275	0.278	1.00	0.419	pCi/L	11/06/20 06:25	12/24/20 08:11	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.2		40 - 110	11/06/20 06:25	12/24/20 08:11	1
Y Carrier	88.2		40 - 110	11/06/20 06:25	12/24/20 08:11	1

Lab Sample ID: LCS 160-488437/1-A
Matrix: Water
Analysis Batch: 493001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488437

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	7.56	5.457	*	0.694	1.00	0.340	pCi/L	72	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	100		40 - 110
Y Carrier	92.3		40 - 110

Lab Sample ID: LCSD 160-488437/2-A
Matrix: Water
Analysis Batch: 493001

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 488437

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	7.56	6.625		0.828	1.00	0.382	pCi/L	88	75 - 125	0.77	1

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.6		40 - 110
Y Carrier	89.7		40 - 110

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Metals

Prep Batch: 459042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total Recoverable	Ground Water	3005A	
280-142103-2	MW-10D	Total Recoverable	Ground Water	3005A	
280-142103-3	MW-13	Total Recoverable	Water	3005A	
280-142103-4	MW-14	Total Recoverable	Water	3005A	
280-142103-5	MW-15	Total Recoverable	Water	3005A	
280-142103-6	MW-16	Total Recoverable	Water	3005A	
280-142103-7	MW-16EB	Total Recoverable	Water	3005A	
280-142103-8	MW-17	Total Recoverable	Water	3005A	
MB 240-459042/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-459042/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-459042/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-142103-1 MS	MW-10	Total Recoverable	Ground Water	3005A	
280-142103-1 MSD	MW-10	Total Recoverable	Ground Water	3005A	

Prep Batch: 459045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	7470A	
280-142103-2	MW-10D	Total/NA	Ground Water	7470A	
280-142103-3	MW-13	Total/NA	Water	7470A	
280-142103-4	MW-14	Total/NA	Water	7470A	
280-142103-5	MW-15	Total/NA	Water	7470A	
280-142103-6	MW-16	Total/NA	Water	7470A	
280-142103-7	MW-16EB	Total/NA	Water	7470A	
280-142103-8	MW-17	Total/NA	Water	7470A	
MB 240-459045/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-459045/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 459212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	7470A	459045
280-142103-2	MW-10D	Total/NA	Ground Water	7470A	459045
280-142103-3	MW-13	Total/NA	Water	7470A	459045
280-142103-4	MW-14	Total/NA	Water	7470A	459045
280-142103-5	MW-15	Total/NA	Water	7470A	459045
280-142103-6	MW-16	Total/NA	Water	7470A	459045
280-142103-7	MW-16EB	Total/NA	Water	7470A	459045
280-142103-8	MW-17	Total/NA	Water	7470A	459045
MB 240-459045/1-A	Method Blank	Total/NA	Water	7470A	459045
LCS 240-459045/2-A	Lab Control Sample	Total/NA	Water	7470A	459045

Analysis Batch: 459250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total Recoverable	Ground Water	6010C	459042
280-142103-2	MW-10D	Total Recoverable	Ground Water	6010C	459042
280-142103-3	MW-13	Total Recoverable	Water	6010C	459042
280-142103-4	MW-14	Total Recoverable	Water	6010C	459042
280-142103-5	MW-15	Total Recoverable	Water	6010C	459042
280-142103-6	MW-16	Total Recoverable	Water	6010C	459042
280-142103-7	MW-16EB	Total Recoverable	Water	6010C	459042
280-142103-8	MW-17	Total Recoverable	Water	6010C	459042
MB 240-459042/1-A	Method Blank	Total Recoverable	Water	6010C	459042

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Metals (Continued)

Analysis Batch: 459250 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-459042/2-A	Lab Control Sample	Total Recoverable	Water	6010C	459042

Analysis Batch: 459611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total Recoverable	Ground Water	6020A	459042
280-142103-2	MW-10D	Total Recoverable	Ground Water	6020A	459042
280-142103-3	MW-13	Total Recoverable	Water	6020A	459042
280-142103-4	MW-14	Total Recoverable	Water	6020A	459042
280-142103-5	MW-15	Total Recoverable	Water	6020A	459042
280-142103-6	MW-16	Total Recoverable	Water	6020A	459042
280-142103-7	MW-16EB	Total Recoverable	Water	6020A	459042
280-142103-8	MW-17	Total Recoverable	Water	6020A	459042
MB 240-459042/1-A	Method Blank	Total Recoverable	Water	6020A	459042
LCS 240-459042/3-A	Lab Control Sample	Total Recoverable	Water	6020A	459042
280-142103-1 MS	MW-10	Total Recoverable	Ground Water	6020A	459042
280-142103-1 MSD	MW-10	Total Recoverable	Ground Water	6020A	459042

General Chemistry

Analysis Batch: 514783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-5	MW-15	Total/NA	Water	SM 2540D	
MB 280-514783/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-514783/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 515282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	SM 2540D	
280-142103-2	MW-10D	Total/NA	Ground Water	SM 2540D	
280-142103-3	MW-13	Total/NA	Water	SM 2540D	
280-142103-4	MW-14	Total/NA	Water	SM 2540D	
280-142103-6	MW-16	Total/NA	Water	SM 2540D	
280-142103-7	MW-16EB	Total/NA	Water	SM 2540D	
280-142103-8	MW-17	Total/NA	Water	SM 2540D	
MB 280-515282/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-515282/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-515282/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 515306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	SM 2540C	
280-142103-2	MW-10D	Total/NA	Ground Water	SM 2540C	
280-142103-3	MW-13	Total/NA	Water	SM 2540C	
280-142103-4	MW-14	Total/NA	Water	SM 2540C	
280-142103-5	MW-15	Total/NA	Water	SM 2540C	
280-142103-6	MW-16	Total/NA	Water	SM 2540C	
280-142103-7	MW-16EB	Total/NA	Water	SM 2540C	
280-142103-8	MW-17	Total/NA	Water	SM 2540C	
MB 280-515306/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-515306/1	Lab Control Sample	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

General Chemistry

Analysis Batch: 517909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	9056A	
280-142103-1	MW-10	Total/NA	Ground Water	9056A	
280-142103-2	MW-10D	Total/NA	Ground Water	9056A	
280-142103-2	MW-10D	Total/NA	Ground Water	9056A	
280-142103-3	MW-13	Total/NA	Water	9056A	
280-142103-3	MW-13	Total/NA	Water	9056A	
280-142103-4	MW-14	Total/NA	Water	9056A	
280-142103-4	MW-14	Total/NA	Water	9056A	
280-142103-5	MW-15	Total/NA	Water	9056A	
280-142103-5	MW-15	Total/NA	Water	9056A	
280-142103-6	MW-16	Total/NA	Water	9056A	
280-142103-6	MW-16	Total/NA	Water	9056A	
280-142103-7	MW-16EB	Total/NA	Water	9056A	
280-142103-8	MW-17	Total/NA	Water	9056A	
280-142103-8	MW-17	Total/NA	Water	9056A	
MB 280-517909/13	Method Blank	Total/NA	Water	9056A	
LCS 280-517909/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-517909/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-517909/10	Lab Control Sample	Total/NA	Water	9056A	
280-142103-1 MS	MW-10	Total/NA	Ground Water	9056A	
280-142103-1 MS	MW-10	Total/NA	Ground Water	9056A	
280-142103-1 MSD	MW-10	Total/NA	Ground Water	9056A	
280-142103-1 MSD	MW-10	Total/NA	Ground Water	9056A	
280-142103-1 DU	MW-10	Total/NA	Ground Water	9056A	
280-142103-1 DU	MW-10	Total/NA	Ground Water	9056A	

Analysis Batch: 518080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-5	MW-15	Total/NA	Water	9056A	
MB 280-518080/6	Method Blank	Total/NA	Water	9056A	
LCS 280-518080/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-518080/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-518080/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 518121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	9040B	
280-142103-2	MW-10D	Total/NA	Ground Water	9040B	
280-142103-3	MW-13	Total/NA	Water	9040B	
280-142103-4	MW-14	Total/NA	Water	9040B	
280-142103-5	MW-15	Total/NA	Water	9040B	
280-142103-6	MW-16	Total/NA	Water	9040B	
280-142103-8	MW-17	Total/NA	Water	9040B	
LCS 280-518121/31	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-518121/5	Lab Control Sample	Total/NA	Water	9040B	
280-142103-2 DU	MW-10D	Total/NA	Ground Water	9040B	

Analysis Batch: 518178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-7	MW-16EB	Total/NA	Water	9040B	
LCS 280-518178/4	Lab Control Sample	Total/NA	Water	9040B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Rad

Prep Batch: 488436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	PrecSep-21	
280-142103-2	MW-10D	Total/NA	Ground Water	PrecSep-21	
280-142103-3	MW-13	Total/NA	Water	PrecSep-21	
280-142103-4	MW-14	Total/NA	Water	PrecSep-21	
280-142103-5	MW-15	Total/NA	Water	PrecSep-21	
280-142103-6	MW-16	Total/NA	Water	PrecSep-21	
280-142103-7	MW-16EB	Total/NA	Water	PrecSep-21	
280-142103-8	MW-17	Total/NA	Water	PrecSep-21	
MB 160-488436/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-488436/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-488436/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 488437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142103-1	MW-10	Total/NA	Ground Water	PrecSep_0	
280-142103-2	MW-10D	Total/NA	Ground Water	PrecSep_0	
280-142103-3	MW-13	Total/NA	Water	PrecSep_0	
280-142103-4	MW-14	Total/NA	Water	PrecSep_0	
280-142103-5	MW-15	Total/NA	Water	PrecSep_0	
280-142103-6	MW-16	Total/NA	Water	PrecSep_0	
280-142103-7	MW-16EB	Total/NA	Water	PrecSep_0	
280-142103-8	MW-17	Total/NA	Water	PrecSep_0	
MB 160-488437/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-488437/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-488437/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-10

Date Collected: 10/27/20 15:30

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-1

Matrix: Ground 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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 18:32	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 22:58	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:12	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 17:38	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 09:53	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 12:47	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.46 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:59	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.46 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Client Sample ID: MW-10D

Date Collected: 10/27/20 15:30

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-2

Matrix: Ground 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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 18:54	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:17	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:22	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 17:27	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 08:47	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 09:04	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	30 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.36 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:56	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.36 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-13

Date Collected: 10/27/20 13:40

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-3

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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 18:58	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:20	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:24	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 17:02	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 09:20	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 09:37	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	30 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.74 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:56	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.74 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Client Sample ID: MW-14

Date Collected: 10/28/20 14:00

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 19:03	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:22	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:26	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 16:58	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 13:52	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 14:08	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	60 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.93 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:57	SCB	TAL SL
Total/NA	Prep	PrecSep_0			499.93 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-15

Date Collected: 10/27/20 16:55

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 19:07	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:25	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:28	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 17:34	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 14:25	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 14:41	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	518080	11/24/20 23:04	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	15 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	514783	10/30/20 07:13	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.27 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:57	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.27 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Client Sample ID: MW-16

Date Collected: 10/28/20 11:20

Date Received: 10/29/20 09:30

Lab Sample ID: 280-142103-6

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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 19:12	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:27	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:30	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 16:52	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 14:58	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 15:14	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	15 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.64 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			492984	12/24/20 12:57	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.64 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Client Sample ID: MW-16EB

Lab Sample ID: 280-142103-7

Date Collected: 10/28/20 11:40

Matrix: Water

Date Received: 10/29/20 09:30

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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 19:16	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:30	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:32	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:42	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 16:03	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.57 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			493001	12/24/20 13:02	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.57 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:07	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	TAL SL

Client Sample ID: MW-17

Lab Sample ID: 280-142103-8

Date Collected: 10/28/20 13:00

Matrix: Water

Date Received: 10/29/20 09:30

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	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459250	11/04/20 19:20	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459042	11/03/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459611	11/05/20 23:32	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459045	11/03/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459212	11/03/20 18:34	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 17:44	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 16:36	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 16:53	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	515306	11/03/20 19:47	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515282	11/03/20 17:19	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.84 mL	1.0 g	488436	11/06/20 05:48	AVB	TAL SL
Total/NA	Analysis	9315		1			493001	12/24/20 13:02	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.84 mL	1.0 g	488437	11/06/20 06:25	AVB	TAL SL
Total/NA	Analysis	9320		1			493001	12/24/20 08:08	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493209	12/28/20 22:14	GRW	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

Eurofins TestAmerica, Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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	01-08-21
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		Ground Water	Temperature
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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
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	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	12-20-20
Oregon	NELAP	4062	02-24-21
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	01-12-21
West Virginia DEP	State	210	12-31-20

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

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	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
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	04-01-21
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	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	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

[illegible]

Chain of Custody Record



Environment Testing
America



Client Information (Sub Contract Lab)		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact:		Phone:		Harrington, Danielle M				280-545140-1	
Shipping/Receiving				E-Mail:		State of Origin:		Page:	
Company:				Danielle.Harrington@Eurofinset.com		Colorado		Page 1 of 1	
TestAmerica Laboratories, Inc.								Job #:	
Address:								280-142103-1	
13715 Rider Trail North,									
City:									
Earth City									
State, Zip:									
MO, 63045									
Phone:									
314-298-8566(Tel) 314-298-8757(Fax)									
Email:									
Project Name:									
Xcel Energy GW CCR Monitoring - Cherokee									
Site:									
Xcel Energy CCR - Cherokee Station									

Due Date Requested:		Analysis Requested	
11/27/2020			
TAT Requested (days):			
PO #:			
WO #:			
Project #:			
28014371			
SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, B1=issue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PreSep_21 Radium-226 - 1/3 - SUB	9320_Ra226/PreSep_0 Radium-228 - 2/3 - SUB	Ra226Ra228 - GPC/ (MOD) Local Method	Total Number of Containers	Special Instructions/Note:
MW-10 (280-142103-1)	10/27/20	15:30	Mountain	Water	X	X	X	X	X	2	
MW-10D (280-142103-2)	10/27/20	15:30	Mountain	Water	X	X	X	X	X	2	
MW-13 (280-142103-3)	10/27/20	13:40	Mountain	Water	X	X	X	X	X	2	
MW-14 (280-142103-4)	10/28/20	14:00	Mountain	Water	X	X	X	X	X	2	
MW-15 (280-142103-5)	10/27/20	16:55	Mountain	Water	X	X	X	X	X	2	
MW-16 (280-142103-6)	10/28/20	11:20	Mountain	Water	X	X	X	X	X	2	
MW-16EB (280-142103-7)	10/28/20	11:40	Mountain	Water	X	X	X	X	X	2	
MW-17 (280-142103-8)	10/28/20	13:00	Mountain	Water	X	X	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/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 compliance to Eurofins TestAmerica.

Possible Hazard Identification	
Unconfirmed	
Deliverable Requested: I, II, III, IV, Other (specify)	
Primary Deliverable Rank: 4	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
☐ Return To Client	☐ Disposal By Lab
Special Instructions/QC Requirements:	
Archive For _____ Months	
Date:	
Method of Shipment:	
Received by: <i>Fedex</i>	
Date/Time: <i>10/31/20 14:28</i>	
Company: <i>ETAPDEN</i>	
Received by: <i>Jed31</i>	
Date/Time: <i>10/31/20 08:30</i>	
Company: <i>ETASTL</i>	
Received by:	
Date/Time:	
Company:	
Custody Seals Intact: ☐ Yes ☐ No	
Custody Seal No.:	
Cooler Temperature(s) °C and Other Remarks:	



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : _____

Client ETA Denver Site Name _____ Cooler unpacked by: [Signature]

Cooler Received on 10-3-20 Opened on 11-2-20

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

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

TestAmerica Cooler # 74 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 +0.9 °C) Observed Cooler Temp. 93 °C Corrected Cooler Temp. 10.2 °C
IR GUN #IR-12 (CF +0.5 °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 NA
-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# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
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: _____

WT-NC-099

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-142103-1

Login Number: 142103

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Kramer, Julieann L

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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: 280-142103-1

Login Number: 142103

List Number: 2

Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis

List Creation: 10/31/20 06:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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
Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

Job ID: 280-142103-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-142103-1	MW-10	116 X	
280-142103-2	MW-10D	96.1	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-142103-3	MW-13	90.3	
280-142103-4	MW-14	56.7	
280-142103-5	MW-15	95.5	
280-142103-6	MW-16	97.9	
280-142103-7	MW-16EB	94.2	
280-142103-8	MW-17	91.2	
LCS 160-488436/1-A	Lab Control Sample	100	
LCSD 160-488436/2-A	Lab Control Sample Dup	90.6	
MB 160-488436/24-A	Method Blank	84.2	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-142103-1	MW-10	116 X	96.8
280-142103-2	MW-10D	96.1	90.1
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-142103-3	MW-13	90.3	86.0
280-142103-4	MW-14	56.7	90.5
280-142103-5	MW-15	95.5	108
280-142103-6	MW-16	97.9	90.8
280-142103-7	MW-16EB	94.2	98.3
280-142103-8	MW-17	91.2	94.6
LCS 160-488437/1-A	Lab Control Sample	100	92.3
LCSD 160-488437/2-A	Lab Control Sample Dup	90.6	89.7

Eurofins TestAmerica, Denver

Tracer/Carrier Summary

Client: HDR Inc

Job ID: 280-142103-1

Project/Site: Xcel Energy GW CCR Monitoring - Cherokee

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
MB 160-488437/24-A	Method Blank	84.2	88.2						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier