2020 Annual Groundwater Monitoring and Corrective Action Report and Semi-Annual Remedy Selection and Design Progress Report

for Compliance with the Coal Combustion Residuals (CCR) Rule

Valmont Station

Public Service Company of Colorado

January 29, 2020

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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 Valmont 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 Valmont 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*:		**Landfill Status**	**Former Bottom Ash Impoundments Status**	**Former Settling 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 and Evaluation of Potential Remedies	Assessment Monitoring Program and Evaluation of Potential Remedies	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 and Evaluation of Potential Remedies	Assessment Monitoring Program and Evaluation of Potential Remedies	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	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.* These SSIs are from the original triggering event.	• MW-1 - calcium, chloride • MW-3 - boron, calcium, sulfate, TDS • MW-4 - calcium, chloride, fluoride, pH, sulfate, TDS • MW-6 - calcium, chloride, TDS • MW-8 - calcium, chloride, sulfate, TDS	• MW-9 – boron, fluoride, sulfate, TDS • MW-10 (since abandoned) - boron, fluoride, sulfate, TDS • MW-11 - boron, fluoride, pH, sulfate, TDS • MW-12 - boron, calcium, pH, TDS	• MW-19B – boron, chloride
§257.90(e)(6)(iii)(B)	*Provide the date when the assessment monitoring program was initiated for the CCR unit.*	February 21-29, 2018	February 22-23, 2018	July 22, 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:*	Yes	Yes	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.* These SSLs are from the original triggering event.	• MW-4 – lithium, selenium • MW-8 – lithium	• MW-9 – cobalt, molybdenum • MW-11 – cobalt • MW-12 - cobalt	N/A
§257.90(e)(6)(iv)(B)	*Provide the date when the assessment of corrective measures was initiated for the CCR unit.*	January 7, 2019	January 7, 2019	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.*	Will be held 30 days prior to remedy selection	Will be held 30 days prior to remedy selection	N/A
§257.90(e)(6)(iv)(D)	*Provide the date when the assessment of corrective measures was completed for the CCR unit.*	June 6, 2019	June 6, 2019	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.*	Evaluation of potential remedies ongoing	Evaluation of potential remedies ongoing	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.*	Evaluation of potential remedies ongoing	Source removal complete in September 2018 Evaluation of potential remedies ongoing	N/A

1.0 Introduction

The U.S. Environmental Protection Agency's (EPA) 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. Valmont Station, located in Boulder County, Colorado (**Figure 1**), is owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy Company. Valmont Station has four CCR units subject to the CCR Rule: the ash landfill, two former incised bottom ash impoundments, and a former ash settling pond (**Figure 2**). The Settling Pond was excavated in 2017 and both bottom ash impoundments were excavated in 2018; all were physically closed by removal of CCR, with ongoing groundwater monitoring.

In 2020, groundwater monitoring was conducted at Valmont to collect assessment monitoring samples at the landfill, former Bottom Ash Impoundments, and former Settling Pond 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 landfill at the end of 2020 is assessment monitoring, and evaluation of potential remedies.
- The status of the groundwater monitoring program for the (closed) Bottom Ash Impoundments at the end of 2020 is assessment monitoring, and evaluation of potential remedies.
- The status of the groundwater monitoring program for the (closed) Settling Pond at the end of 2020 is in assessment monitoring.

2.0 Facility Description

Valmont Station was a coal-fired, steam turbine electric generating station that burned sub-bituminous, low-sulfur coal supplied by several mines in western Colorado. Valmont Station was retired from operations on September 30, 2017. During the active operations, two incised bottom ash impoundments (3A and 3B) were used for temporary storage of bottom ash prior to final disposition. Fly ash was dry handled and trucked either off site for beneficial use, or to the on-site ash landfill. The landfill is located adjacent to and north of Leggett Reservoir, and the former impoundments are to the southeast of Leggett Reservoir (**Figure 2**). During operations, the impoundments were periodically dredged, and the bottom ash disposed in the on-site landfill. Both ash impoundments were physically closed by final removal of all CCR, which was completed in September 2018; completion of CCR removal was certified by a Professional Engineer. The CCR waste removed during closure was disposed in the on-site landfill. The landfill will continue to be used for disposal of non-CCR waste and is planned to be closed in 2021.

The former Settling Pond is located on the west side of Leggett Reservoir and was constructed in 1973 with a PVC liner (**Figure 2**). It was used for bottom ash settling from 1973 to 1980. The

pond ceased receiving CCR prior to October 19, 2015 and therefore met the definition of Inactive CCR Surface Impoundments that first became subject to the groundwater monitoring requirements under the Direct Final Rule effective October 4, 2016 (Extension Rule). The pond was physically closed by removal of all CCR and liner material, which was completed in July 2017; completion of CCR removal was certified by a Professional Engineer. The CCR waste removed during closure was disposed in the on-site landfill.

The operation and monitoring of all the CCR units are described further in the Valmont Station Groundwater Monitoring System Certification (HDR, 2021).

2.1 Hydrogeology

2.1.1 Landfill

The ash landfill at Valmont Station is located on the flanks of Valmont Butte on weathered shale above the claystone consolidated bedrock Pierre Shale. The Pierre Shale is a claystone with interbeds of siltstone and discontinuous cemented layers of bedrock that is approximately 2,000 feet thick in this area. The thickness of weathered bedrock under the ash fill and over the bedrock varies from 5 to 15 feet. Due to the Pierre Shale thickness and low permeability, underlying formations do not receive significant recharge from above (Kumar and Associates, Inc., 2011). There is perched water beneath the landfill and coincident with the top of the Pierre Shale and the water surface of Leggett Reservoir. The shallow groundwater flow beneath the landfill follows the topography and is generally to the south-southeast in the eastern portion of the landfill, to the northeast in the northeastern portion of the landfill, and to the southwest under the western portion of the landfill (**Figure 2**), as compared with the regional, deeper water table that flows to the northwest (APEX, 2008; Xcel, 2009).

2.1.2 Impoundments

The groundwater levels in monitor wells around former impoundments 3A and 3B coincide with the fluctuation of the water levels in Leggett Reservoir. The reservoir and the groundwater surface around the impoundments are perched above the Pierre Shale.

2.1.3 Settling Pond

The former Settling Pond is located immediately west of the Leggett Reservoir embankment on alluvial sands and silts above weathered shale and the Pierre Shale. The groundwater levels in monitor wells around the Settling Pond indicate the shallow groundwater flow is generally to the northwest. Further hydrogeologic characterization of the site is provided in the Valmont Station Groundwater Monitoring System Certification (HDR, 2021).

2.2 Monitoring Well Network

2.2.1 Landfill

A total of 18 monitoring wells are in the landfill certified monitoring network for CCR compliance: two upgradient monitoring wells (MW-7 and MW-5) and 14 downgradient monitoring wells (MW-1, MW-3, MW-4, MW-6, MW-8, MW-13, MW-14, MW-15, MW-16, MW-21, MW-25B, MW-26, MW-27, and MW-28) (**Figure 2**). In addition, two existing wells (MW-2 and MW-24) are

monitored for water levels only (**Figure 2**). The network is described in detail in the Groundwater Monitoring System Certification report (HDR, 2021). No landfill monitoring wells were installed or abandoned in 2020.

Groundwater flow is to the northeast in the northeastern portion of the landfill, flow is to the south-southeast within the southeastern portion of the facility and to the south-southwest at the western portion of the facility. Generally, groundwater flow is from the topographic high ridge area at the northwestern portion of the landfill and flows radially out towards topographic lows and towards Leggett Reservoir. Well locations MW-7 and MW-5 on the northwest side of the landfill are located upgradient of the landfill and serve as the background wells. Wells MW-1, MW-3, MW-4, MW-6, MW-8, MW-14, MW-15, and MW-21 monitor downgradient water quality along the waste boundary. Wells MW-13, MW-27, and MW-28 are located at along the waste boundary and the northeast property boundary. MW-16, MW-25B and MW-26 are located along the property boundary to assess offsite movement of constituents of interest. MW-2 and MW-24 are included in the monitoring network for water level measurement only in order to improve potentiometric surface mapping.

2.2.2 Impoundments

Four wells are in the monitoring network for CCR compliance of the (closed) bottom ash impoundments. The flow of groundwater in the immediate vicinity of the former impoundments (3A and 3B) appears to be controlled by the water level in Leggett Reservoir. Therefore, three wells (MW-9, MW-11, MW-12) comprising a multi-unit monitoring network for the two impoundments are located along the perimeter of the impoundments to serve as downgradient wells (**Figure 2**). The well MW-1P was selected to serve as the background well based upon its location approximately 300 feet south of the impoundments and separation from the impoundments by Leggett Reservoir, as described in the Groundwater Monitoring System Certification report (HDR, 2021).

No wells associated with the former ash impoundment monitoring network were installed or abandoned in 2020.

2.2.3 Settling Pond

Four wells (MW-17, MW-18, MW-19B, MW-20) located around the perimeter of the (closed) Settling Pond comprise the certified monitoring network (**Figure 2**). The east side of the former pond is constrained by the Leggett reservoir embankment, thus the four wells were sited around the other three sides of the pond to capture upgradient and downgradient conditions at the pond. The groundwater flow direction is towards the northwest; therefore MW-20 is the upgradient well that represents background water quality for the CCR unit.

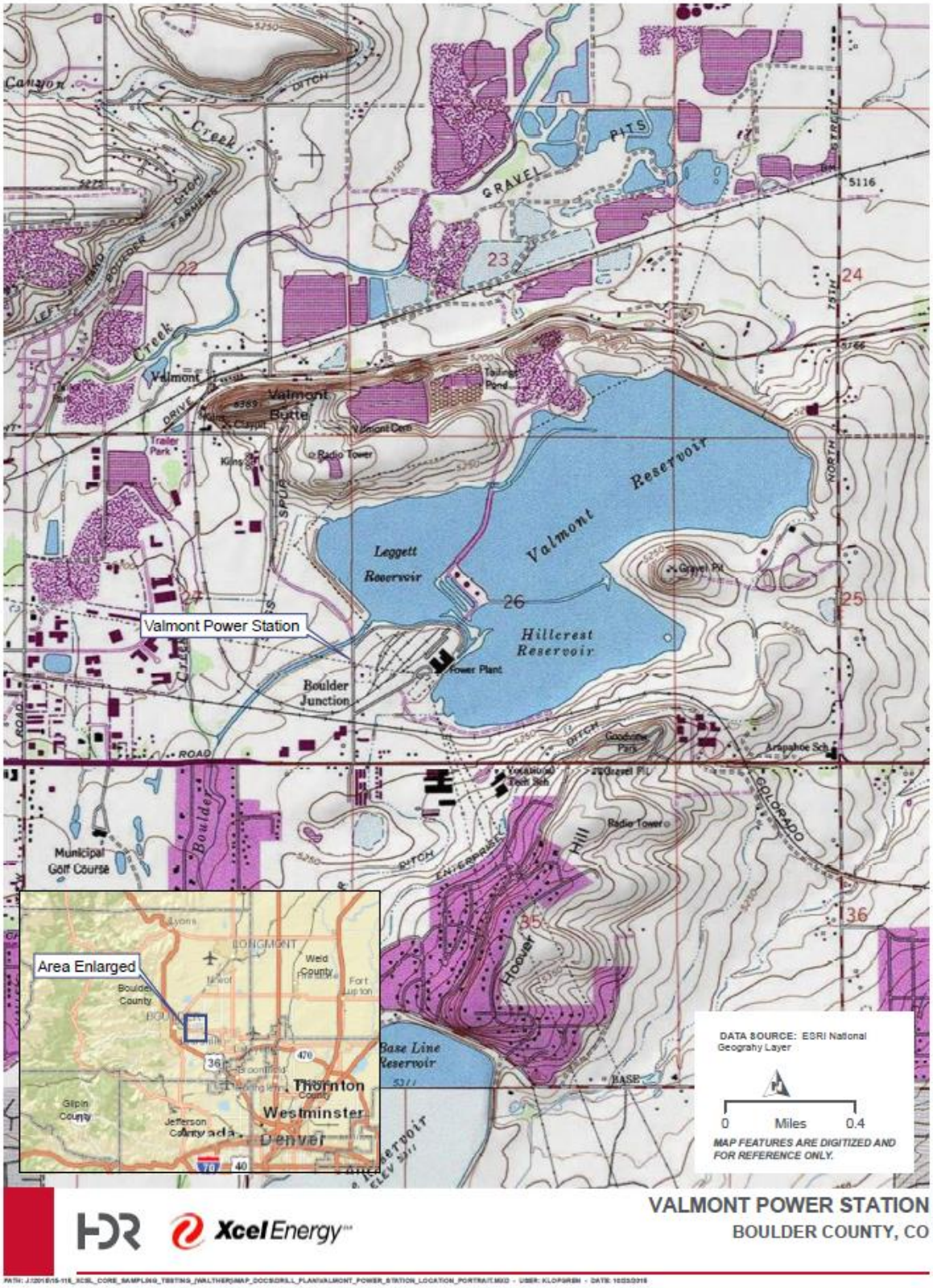


Figure 1. Vicinity map for Valmont Station.

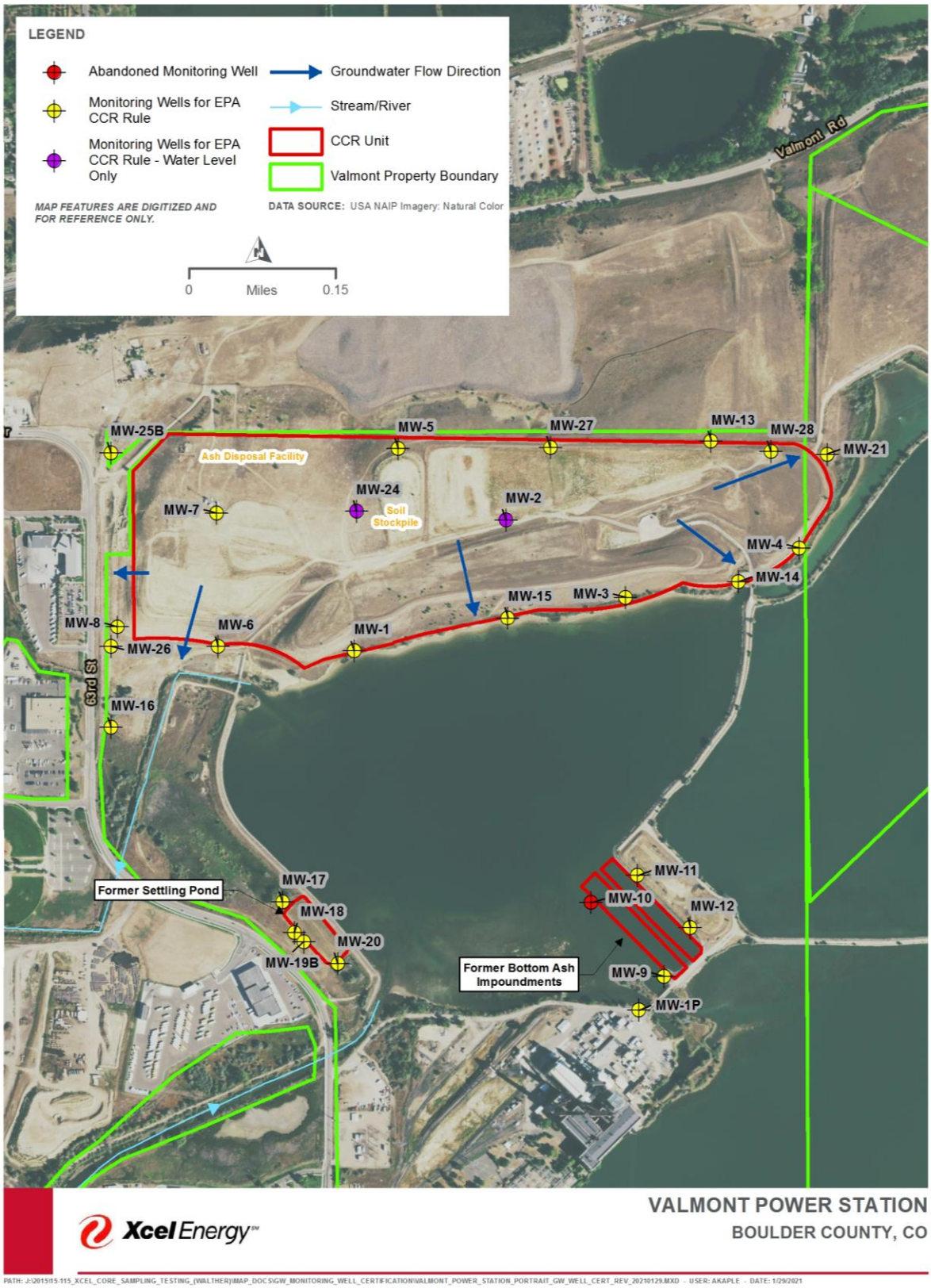


Figure 2. Valmont Station – CCR units and monitoring well location map.

3.0 Monitoring

3.1 Frequency

3.1.1 Landfill

Assessment monitoring continued in 2020 for the landfill. An annual assessment monitoring event was completed April 20-28, 2020 to sample wells around the landfill for Appendix III and IV constituents plus TSS (**Table 1**). Samples were collected from 16 monitoring wells (MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-13, MW-14, MW-15, MW-16, MW-21, MW-25B, MW-26, MW-27, and MW-28). All Appendix IV constituents were detected in at least one well with the exception of beryllium, mercury, and thallium.

On October 19-22, 2020, semi-annual assessment monitoring samples were collected from all landfill monitoring wells. Samples were analyzed for Appendix III and detected Appendix IV COIs plus TSS. Samples were collected from the certified monitoring network of wells (MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-13, MW-14, MW-15, MW-16, MW-21, MW-25B, MW-26, MW-27, and MW-28). **Table 2** provides the well identification, number of samples collected, dates samples were collected in 2020, and the CCR Rule monitoring purpose. **Appendix A** provides the distinctions for the different types of monitoring events and the CCR Rule Part under which the monitoring event was conducted.

Table 1. Groundwater quality parameters

Appendix III Constituents	Appendix IV Constituents
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 for each well and the required monitoring programs for the Valmont Landfill (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-1	Downgradient	April 23, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-3	Downgradient	April 23, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-4	Downgradient	April 21, 2020	Annual Assessment Monitoring
		October 21, 2020	Semi-Annual Assessment Monitoring
MW-5	Upgradient / Background	April 25, 2020	Annual Assessment Monitoring
		October 22, 2020	Semi-Annual Assessment Monitoring
MW-6	Downgradient	April 27, 2020	Annual Assessment Monitoring
		October 21, 2020	Semi-Annual Assessment Monitoring
MW-7	Upgradient / Background	April 22, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-8	Downgradient	April 23, 2020	Annual Assessment Monitoring
		October 21, 2020	Semi-Annual Assessment Monitoring
MW-13	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 19, 2020	Semi-Annual Assessment Monitoring
MW-14	Downgradient	April 21, 2020	Annual Assessment Monitoring
		October 21, 2020	Semi-Annual Assessment Monitoring
MW-15	Downgradient	April 23, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-16	Downgradient	April 24, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-21	Downgradient	April 21, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-25B	Downgradient	April 28, 2020	Annual Assessment Monitoring
		October 21, 2020	Semi-Annual Assessment Monitoring
MW-26	Downgradient	April 23, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring
MW-27	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 19, 2020	Semi-Annual Assessment Monitoring

Table 2. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Valmont Landfill (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-28	Downgradient	April 22, 2020	Annual Assessment Monitoring
		October 20, 2020	Semi-Annual Assessment Monitoring

3.1.2 Bottom Ash Impoundments

Assessment monitoring continued in 2020 for the former bottom ash impoundments. An annual assessment monitoring event was completed April 20-28, 2020 to sample the monitoring wells around the impoundments for all Appendix III and IV constituents plus TSS (**Table 1**). Samples were collected from the monitoring network of wells (MW-1P, MW-9, MW-11, and MW-12). All Appendix IV constituents were detected in at least one well except for antimony, beryllium, cadmium, lead, mercury, and thallium.

During the October 19-22, 2020 semi-annual assessment monitoring event, samples were collected from all the impoundment monitoring wells. Samples were analyzed for Appendix III and detected Appendix IV COIs plus TSS. Samples were collected from the monitoring network of wells (MW-1P, MW-9, MW-11, and MW-12). **Table 3** provides the well identification, number of samples collected, dates samples were collected in 2020, and whether the sample was required by the detection monitoring or assessment monitoring programs (per (257.90(e)(3))).

Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Valmont (Closed) Bottom Ash Impoundments (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-1P	Upgradient/ Background	April 20, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 21, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-9	Downgradient	April 20, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 21, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-11	Downgradient	April 21, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 22, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-12	Downgradient	April 21, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 22, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)

3.1.3 Settling Pond

As stipulated in the Direct Final Rule (Extension Rule), eight rounds of background groundwater sampling were initiated in 2018 for the (closed) Settling Pond, to be completed before April 17, 2019. Background sampling began in June 2018 and was completed in January 2019.

Background samples were analyzed for Appendix III and IV COIs plus TSS. The first detection monitoring event was conducted on February 4, 2019 (May 24, 2019 for replacement well MW-19B). The initial assessment monitoring event was conducted on July 22, 2019 and the first semi-annual assessment monitoring event was conducted on October 22, 2019.

Assessment monitoring continued in 2020 for the (closed) settling pond. An annual assessment monitoring event was completed April 20-28, 2020 to sample all the monitoring wells around the pond for all Appendix III and IV constituents plus TSS (**Table 1**). Samples were collected from the monitoring network of wells (MW-17, MW-18, MW-19B, and MW-20). All Appendix IV constituents were detected in at least one well with the exception of beryllium, cadmium, mercury and thallium.

During the October 19-22, 2020 semi-annual assessment monitoring event, samples were collected from all of the impoundment monitoring wells. Samples were analyzed for Appendix III and detected Appendix IV COIs plus TSS. Samples were collected from the monitoring network of wells (MW-17, MW-18, MW-19B, and MW-20). **Table 4** provides the well identification, number of samples collected, dates samples were collected in 2020, and whether the sample was required by the detection monitoring or assessment monitoring programs (per (257.90(e)(3))).

Table 4. Number and dates of groundwater samples collected in 2020 for each well and the required monitoring programs for the (closed) Valmont Settling Pond (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-17	Downgradient	April 28, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 22, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-18	Downgradient	April 27, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 22, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-19B	Downgradient	April 27, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 21, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)
MW-20	Upgradient/ Background	April 27, 2020	Annual Assessment Monitoring (Post-CCR Removal)
		October 22, 2020	Semi-Annual Assessment Monitoring (Post-CCR Removal)

3.2 Water Levels and Sample Collection

Water levels were collected in each well prior to sample collection. Groundwater sample collection protocols follow the Groundwater Sample Collection Standard Operating Procedure (SOP) (HDR, 2015). The water samples were collected using a submersible Geotech SS Geosub pump or bailer, and the equipment was 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, 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 Test America in Denver, Colorado.

3.3 Analytical Testing

Groundwater samples for each type of monitoring were analyzed for the COIs shown in **Appendix A and listed in Table 1**. Background monitoring analyses include all of the parameters in Appendices III and IV of CCR Rule Part 257, plus TSS. Initial assessment monitoring, and subsequent annual assessment monitoring samples are analyzed for all Appendix IV COIs to determine what COIs are detected. The semi-annual assessment monitoring samples are analyzed for all Appendix III and detected Appendix IV COIs. The laboratory analyzed matrix spike/matrix spike duplicates at a rate of 5 percent, per laboratory quality control procedures.

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, 2019a). 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 control limits, samples were reported as estimated. Relative percent difference (RPD) results for field duplicate analyses were generally within the control limit criterion of 20%. RPD results for lab duplicate analyses were all within the control limit criterion of 20%. Laboratory Control Sample (LCS)/LCS duplicates recoveries and RPDs were all within control limits. Matrix Spike/Duplicate (MS/MSD) recoveries and RPDs were generally within control limits. 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 and are shown in **Table 5**. The water levels and contour map (**Appendix B**) confirm that monitoring wells MW-7 and MW-5 are located upgradient or cross gradient of the ash landfill and are appropriate to represent background water quality. Groundwater flow under the landfill was generally to the south, southwest and west in the western portion of the landfill, and to the northeast, east, and southeast in the eastern portion of the landfill.

Table 5. Groundwater elevations measured in 2020

Well ID	TOC Elevation (ft amsl)	CCR Unit	Well Location Relative to CCR Units	Groundwater Elevation (ft amsl) Week of 4/20/2020	Groundwater Elevation (ft amsl) Week of 10/19/2020
MW-1	5234.27	Landfill	Downgradient	5223.75	5222.87
MW-1P	5234.38	Bottom Ash Pond	Background/ Upgradient	5224.52	5223.38
MW-2	5289.56	Landfill	Water Level Only	5254.28	5252.39
MW-3	5233.52	Landfill	Downgradient	5224.86	5224.32
MW-4	5237.21	Landfill	Downgradient	5226.38	5225.06
MW-5	5292.10	Landfill	Background/ Upgradient	5243.91	5234.00
MW-6	5235.23	Landfill	Downgradient	5215.14	5213.48
MW-7	5299.46	Landfill	Background/ Upgradient	5265.04	5260.22
MW-8	5234.97	Landfill	Downgradient	5211.96	5209.92
MW-9	5234.25	Bottom Ash Pond	Downgradient	Note 1	5223.60
MW-11	5235.22	Bottom Ash Pond	Downgradient	5222.62	5223.42
MW-12	5235.05	Bottom Ash Pond	Downgradient	5224.22	5223.45
MW-13	5282.00	Landfill	Downgradient	5232.59	5231.20
MW-14	5233.53	Landfill	Downgradient	5225.58	5224.68
MW-15	5231.90	Landfill	Downgradient	5224.66	5223.95
MW-16	5219.92	Landfill	Downgradient	5208.61	5208.02
MW-17	5227.39	Settling Pond	Downgradient	5219.68	5218.48
MW-18	5231.58	Settling Pond	Downgradient	5220.34	5218.68
MW-19	5234.35	Settling Pond	Downgradient	5220.65	Note 2
MW-19B	5232.89	Settling Pond	Downgradient	5220.79	5219.11
MW-20	5230.99	Settling Pond	Background/ Upgradient	5222.81	5221.19
MW-21	5236.21	Landfill	Downgradient	5224.63	5224.98
MW-22	5277.10	Landfill	Downgradient	5233.39	5233.45
MW-23	5277.20	Landfill	Downgradient	5194.67	5203.65
MW-24	5295.50	Landfill	Water Level Only	5252.04	5253.56
MW-25B	5248.56	Landfill	Downgradient	5223.76	5222.66
MW-26	5227.74	Landfill	Downgradient	5209.93	5208.03
MW-27	5290.37	Landfill	Downgradient	5253.45	5253.12
MW-28	5271.23	Landfill	Downgradient	5218.84	5219.68

Note 1: Water level was not measured accurately due to water level meter malfunction.
Note 2: MW-19 was removed from the monitoring well network and water level measurement is not required.

The flow of groundwater in the downgradient wells immediately adjacent to the impoundments (MW-9, MW-11, and MW-12) and the upgradient well MW-1P are controlled by Leggett Reservoir water level, thus the water table is relatively flat at the impoundments. Well MW-1P is also influenced by the Leggett Reservoir, but is located approximately 300 feet south of the impoundments and therefore is located upgradient or at a side gradient but is sufficient to serve as the background well for the impoundments monitoring.

The water levels and contour map (**Appendix B**) confirm that monitoring well MW-20 is located upgradient of the (closed) Settling Pond and is appropriate to represent background water quality for that CCR unit. Groundwater flow under the Settling Pond is generally to the north-northwest.

4.2 Water Quality

4.2.1 Landfill

As stipulated in the CCR Rule, eight rounds of background groundwater sampling and the first detection monitoring sampling were completed before October 17, 2017 for the landfill. Background threshold values were calculated, and the detection monitoring results were compared to BTVs. In January 2018, a determination was made that concentrations of several Appendix III COIs statistically significant increases (SSIs) over BTVs at all five downgradient wells (MW-1, MW-3, MW-4, MW-6, and MW-8). Therefore, these SSIs triggered the assessment monitoring program for the landfill, and the first two assessment monitoring sampling events were completed in 2018. In accordance with CCR Rule 257.95(h), GPS were established for each detected Appendix IV COI, and the assessment monitoring results were compared to the respective GPS values (**Table 6**). In October 2018, downgradient wells were found to have concentrations of lithium at statistically significant levels (SSLs) above the GPS. This triggered the requirement to conduct an assessment of corrective measures for the landfill, which was completed in June 2019. An update on progress towards remedy selection is provided in Section 5.0.

Table 6. Groundwater Protection Standards for Detected Appendix IV COIs for the Landfill 257.95(d)(3)

Constituent	Unit	MCL	BTV (UTL)	GPS
Fluoride	mg/l	4.00	0.787	4.00
Arsenic	mg/l	0.0100	0.00700	0.0100
Barium	mg/l	2.00	0.110	2.00
Beryllium	mg/l	0.00400	0.000720	0.00400
Cadmium	mg/l	0.00500	0.0310	0.0310
Chromium, Total	mg/l	0.100	0.0876	0.100
Cobalt	mg/l	0.00600*	0.00795	0.00795
Lead	mg/l	0.0150*	0.0228	0.0228
Lithium	mg/l	0.0400*	0.0830	0.0830
Molybdenum	mg/l	0.100*	0.0280	0.100
Radium-226-228	pci/l	5.0^	4.55	5.0
Selenium	mg/l	0.0500	0.0203	0.0500

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

Assessment monitoring has continued, and in April 2020, annual assessment monitoring samples were collected from the certified monitoring well network wells; all samples were analyzed for all Appendix III and Appendix IV COIs. Laboratory reports are provided in

Appendix C. Statistics are completed after each sample event. The April results are consistent with prior sample events. The results indicate that there are downgradient wells with exceedances of GPS for arsenic, lithium, and selenium; and there are SSLs in downgradient wells for lithium and selenium. Downgradient well MW-4 has concentrations of lithium and selenium at SSLs above GPS. Downgradient well MW-8 has concentrations of lithium at SSLs above GPS. Additional wells have concentrations of arsenic, lithium, and/or selenium above GPS; however additional sample events are necessary to calculate the lower confidence limits (LCLs) and determine if the concentration exceedances are statistically significant.

In October 2020 the semi-annual assessment monitoring samples were collected and all samples were analyzed for Appendix III and detected Appendix IV COIs. Laboratory reports are provided in **Appendix C**. The October water quality results are consistent with prior sample events. Downgradient well MW-4 has concentrations of lithium and selenium at SSLs above GPS. Downgradient well MW-8 has concentrations of lithium at SSLs above GPS. Additional wells have concentrations of arsenic, lithium, and/or selenium above GPS; however additional sample events are necessary to calculate the lower confidence limits (LCLs) and determine if the concentration exceedances are statistically significant.

In 2021, PSCo will continue to monitor groundwater at the landfill in accordance with the assessment monitoring program and consistent with 257.93(e). In accordance with 257.97(a), PSCo will complete semi-annual progress reporting in 2021 to document additional work completed towards remedy selection and design.

4.2.2 Impoundments

As stipulated in the CCR Rule, eight rounds of background groundwater sampling and the first detection monitoring sampling were completed before October 17, 2017 for the ash impoundments. Background threshold values were calculated, and the detection monitoring results were compared to BTVs. In January 2018, a determination was made that concentrations of several Appendix III COIs statistically significant increases (SSIs) over BTVs at all four downgradient wells (MW-9, MW-10, MW-11, and MW-12). Therefore, these SSIs triggered the assessment monitoring program for the impoundments, and the first two assessment monitoring sampling events were completed in 2018. In accordance with CCR Rule 257.95(h), GPS were established for each detected Appendix IV COI, and the assessment monitoring results were compared to the respective GPS values (**Table 7**). In October 2018, downgradient wells were found to have concentrations of cobalt and molybdenum at statistically significant levels (SSLs) above the GPS. This triggered the requirement to conduct an assessment of corrective measures for the impoundments, which was completed in June 2019. An update on progress towards remedy selection is provided in Section 5.0.

Assessment monitoring has continued, and in April 2020, annual assessment monitoring samples were collected from the certified monitoring well network wells; all samples were analyzed for all Appendix III and Appendix IV COIs. Laboratory reports are provided in **Appendix C**. Statistics are completed after each sample event. The April results are consistent with prior sample events. The results indicate that there are SSLs in downgradient wells for cobalt and molybdenum. Downgradient wells MW-11 and MW-12 have concentrations of cobalt

Table 7. Groundwater Protection Standards for Detected Appendix IV COIs for the Bottom Ash Impoundments 257.95(d)(3)

Constituent	Unit	MCL	BTV (UTL)	GPS
Fluoride	mg/l	4.00	1.30	4.00
Arsenic	mg/l	0.0100	0.0107	0.0107
Barium	mg/l	2.00	0.330	2.00
Cobalt	mg/l	0.00600*	0.00530	0.00600
Lead	mg/l	0.0150*	0.00327	0.0150
Lithium	mg/l	0.0400*	0.0176	0.0400
Molybdenum	mg/l	0.100*	0.0267	0.100
Radium-226-228	pci/l	5.0^	1.07	5.0

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

at SSLs above GPS. Downgradient well MW-9 has concentrations of cobalt and molybdenum at SSLs above GPS.

In October 2020 the semi-annual assessment monitoring samples were collected and all samples were analyzed for Appendix III and detected Appendix IV COIs. Laboratory reports are provided in **Appendix C**. The October water quality results are consistent with prior sample events that indicate downgradient wells MW-11 and MW-12 have concentrations of cobalt at SSLs above GPS. Downgradient well MW-9 has concentrations of cobalt and molybdenum at SSLs above GPS.

In 2021, PSCo will continue to monitor groundwater at the impoundments in accordance with the assessment monitoring program and consistent with 257.93(e). While the source control has been completed through removal of the CCR, PSCo will continue to evaluate whether monitored natural attenuation (MNA) is sufficient to meet clean closure criteria in groundwater or if additional measures will be needed. In accordance with 257.97, PSCo will complete semi-annual progress reporting in 2021 to document the additional work completed towards remedy selection.

4.2.3 Settling Pond

As stipulated in the CCR Rule, eight rounds of background groundwater sampling and the first detection monitoring sampling were completed by May 2019 for the former Settling Pond. Background threshold values were calculated, and the detection monitoring results were compared to BTVs. In July 2019, a determination was made that concentrations of several Appendix III COIs statistically significant increases (SSIs) over BTVs at one downgradient well (MW-19B). Therefore, these SSIs triggered the assessment monitoring program for the former Settling Pond, and the first two assessment monitoring sampling events were completed in 2019. In accordance with CCR Rule 257.95(h), GPS were established for each detected Appendix IV COI, and prior assessment monitoring results have not observed GPS exceedances (**Table 8**).

Table 8. Groundwater Protection Standards for Detected Appendix IV COIs for the Settling Pond 257.95(d)(3)

Constituent	Unit	MCL	BTV (UTL)	GPS
Fluoride	mg/l	4.00	3.27	4.00
Arsenic	mg/l	0.0100	0.000750	0.0107
Barium	mg/l	2.00	0.0266	2.00
Beryllium	mg/l	0.00400	0.000310	0.0040
Chromium	mg/l	0.00600*	0.00320	0.00600
Cobalt	mg/l	0.00600*	0.000200	0.0060
Lead	mg/l	0.0150*	0.000450	0.0150
Lithium	mg/l	0.0400*	0.0429	0.0400
Molybdenum	mg/l	0.100*	0.0310	0.100
Radium-226-228	pci/l	5.0^	0.705	5.0

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

In April and October 2020, annual assessment monitoring samples were collected from wells MW-17, MW-18, MW-19B, and MW-20. Samples were analyzed for all Appendix III and Appendix IV COIs. Laboratory reports for 2020 sample events are provided in **Appendix C**. In accordance with CCR Rule 257.95(e), downgradient well concentrations from both the April and October 2020 assessment monitoring events 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 while there were one-time exceedances of GPS, it was not an SSL over GPS. Therefore, in accordance with CCR Rule 257.95(f), assessment monitoring will continue.

In 2021, PSCo will continue to monitor groundwater in accordance with the assessment monitoring program and consistent with 257.93(e).

5.0 Remedy Selection Progress Update

The sections below provide the semi-annual progress report describing the progress towards remedy selection and design for the landfill and the ash impoundments in accordance with 257.97(a). Semiannual progress reports will be prepared and posted to the CCR website until a remedy is selected and documented in a final report.

5.1 Landfill

As described in *Groundwater Protection Standards and Determination of SSLs per 257.95(g)*, downgradient wells at the landfill were found to have concentrations of arsenic, lithium and selenium at SSLs above the GPS (HDR, 2019c). Therefore, PSCo completed the *Conceptual Site Model and Assessment of Corrective Measures* on June 6, 2019 in accordance with CCR Rule 257.96. A groundwater flow and transport model were developed for the Valmont Landfill

in Spring 2019 to support the corrective measures assessment. The groundwater model is described in the *Conceptual Site Model and Assessment of Corrective Measures* (HDR, 2019b).

The objectives of the model are to simulate whether constituents of concern (COCs) in groundwater may have migrated beyond the property boundary and then evaluate the effectiveness of potential corrective measures in meeting the requirements and objectives of the remedy in accordance with 257.97. The model was recalibrated in 2020 to account for new water levels and constituent concentrations measured in new wells that were installed in 2019. Overall, the calibration to measured concentrations shows a good match and is acceptable as a starting point for predictive simulations. Since the model recalibration in the first part of 2020, PSCo has continued to develop model simulations for corrective measure alternatives. Specifically, the model simulates the extent of the COCs in groundwater and evaluates the effectiveness of each potential corrective measure to reduce groundwater concentrations over time with the goal of selecting the best remedy or combination of measures for implementation. For each corrective measure alternative simulated, the model evaluates:

- concentrations of COCs over time, transport directions, potential for movement offsite and quantify mass flux moving offsite or into the on-site reservoirs; and
- the time required for each alternative to “complete the remedy” (per 257.96(c)(2)).

In addition to groundwater model simulations, PSCo has developed the Permeable Reactive Barrier (PRB) Feasibility Study Design. The study will evaluate the feasibility of a PRB via conventional trench, via injection wells, and via funnel and gate. The study design includes an evaluation of the geotechnical characteristics of the substrate and geochemical bench testing of reagents with site groundwater. The feasibility study will be implemented in 2021.

In 2020 PSCo has also been evaluating the feasibility of removing ash from the landfill for beneficial use and has contracted with HDR to initiate potential ash removal design scenarios and phasing.

PSCo continued communication with the adjacent landowner regarding off-site migration. Negotiations are in progress with the landowner for data collection on their property. It may be appropriate to adjust the model boundary to incorporate additional data from off-site data.

PSCo continues to proceed diligently through the process of further evaluating potential remedies, consistent with best practices and profession judgment. The following activities are anticipated to be completed or initiated in the next 6-month period for the landfill, but are subject to change based upon the iterative nature of the process, uncertainty about the results of each step, and interim findings:

- Implementation of the PRB Feasibility Study Work Plan to include efforts to evaluate both the substrate and the bench-scale geochemical testing of reagents.
- Continued development of the feasibility of ash removal for beneficial use as a viable source removal corrective measure.

- Continued communication with adjacent landowner regarding off-site migration and evaluation of the feasibility for off-site data collection.
- Evaluate the boundary of the groundwater model and whether it may be appropriate to adjust the boundary to incorporate additional data from off-site wells.
- Continue semiannual groundwater assessment monitoring.

5.2 Impoundments

In accordance with the CCR Rule, PSCo initiated background groundwater monitoring around the bottom ash impoundments in 2015, conducted detection monitoring at the impoundments in 2017, and has been performing assessment monitoring continually since 2018. As described in *Groundwater Protection Standards and Determination of SSLs per 257.95(g)*, downgradient wells at the impoundments were found to have concentrations of cobalt and molybdenum at SSLs above the GPS. In response to these SSLs, the assessment of corrective measures completed on June 6, 2019 included evaluation of corrective measures for the impoundments in accordance with CCR Rule 257.96. The assessment evaluated three corrective measures for the impoundments: CCR source removal, monitored natural attenuation (MNA), and enhanced natural attenuation. Of these three, CCR source removal has already been implemented, having been completed in September 2018. Monitored attenuation is a recognized approach for attainment of groundwater protection standards, especially where the source has been removed, provided it can meet the remedy criteria, particularly timeliness.

As discussed in the *Conceptual Site Model and Assessment of Corrective Measures,* concentrations of CCR constituents that exceeded GPS (cobalt and molybdenum) are fairly low at the monitoring wells, and the extent of impacts to groundwater is confined to the area of the former impoundments, which are completely surrounded by the Leggett, Valmont, and Hillcrest reservoirs. PSCo continues assessment monitoring at the former impoundments to evaluate concentration trends of these COCs and to assess if the implemented corrective measures (source removal, combined with MNA) appears to be an effective remedy. The groundwater chemistry from 2019 and 2020 has decreasing concentrations of both cobalt and molybdenum in all three downgradient wells; therefore, groundwater chemistry is expected to further improve as a result of the source removal. Specifically, MW-9 and MW-12 both have single sample event concentrations of cobalt below the GPS in 2020, and overall downward trends. The concentration of molybdenum at MW-9 maintains an overall downward trend and the most recent concentration is equal to the GPS value. At the rate of concentration decline observed, it is estimated that all Appendix IV constituent concentrations will be likely be below GPS within the next few years.

The following activities are proposed to be completed in the next 6-month period:

- Continued semiannual groundwater assessment monitoring.
- Continued evaluation of COC concentrations relative to GPS and background and general trends.

6.0 Summary

The following observations are based on CCR Rule compliance monitoring data collected during the 2020 and prior sample events:

Landfill

- A total of 18 wells were monitored as part of the landfill monitoring for CCR compliance: two upgradient monitoring wells (MW-7 and MW-5), fourteen downgradient monitoring wells (MW-1, MW-3, MW-4, MW-6, MW-8, MW-13, MW-14, MW-15, MW-16, MW-21, MW-25B, MW-26, MW-27, and MW-28), and two monitoring wells for water levels only (MW-2 and MW-24). No wells were installed or abandoned in 2020.
- Assessment monitoring data from the landfill is statistically evaluated after each event and compared to background values and GPS.
- In April 2020, annual assessment monitoring samples were collected from the 16 landfill monitoring wells. Samples were analyzed for Appendix III and Appendix IV COIs plus TSS. Downgradient wells had concentrations of lithium and selenium at SSLs above GPS and arsenic concentrations above GPS.
- In October 2020, semi-annual assessment monitoring samples were collected from all 16 of the landfill monitoring wells. Samples were analyzed for Appendix III and detected Appendix IV COIs plus TSS. Downgradient wells had concentrations of lithium and selenium at SSLs above GPS and arsenic concentrations above GPS.
- Valmont Station landfill status at the end of 2020 is assessment monitoring and evaluation of potential remedies.

(Closed) Bottom Ash Impoundments

- All CCR waste was removed from the impoundments by September 2018. Groundwater monitoring continued in 2020 to evaluate the post-clean closure/corrective measures groundwater quality.
- Four wells are in the monitoring network for CCR compliance of the (closed) bottom ash impoundments: MW-1P serves as a background monitoring well and MW-9, MW-11, and MW-12 serve as downgradient wells. No wells associated with the former ash impoundment monitoring network were installed or abandoned in 2020.
- Assessment monitoring data from the landfill is statistically evaluated after each event and compared to background values and GPS.
- An annual assessment monitoring event was completed April 2020 to sample wells around the impoundments for all Appendix III and IV constituents plus TSS. The April results indicate that there are SSLs downgradient wells for cobalt and molybdenum; however, there are downward concentration trends at all wells for these constituents of concern.
- During the October 2020 semi-annual assessment monitoring event, samples were collected from all of the impoundment monitoring wells for Appendix III and detected Appendix IV COIs plus TSS. Results in October were consistent with prior results.
- Valmont Station ash impoundments status at the end of 2020 is assessment monitoring to evaluate: 1) if clean closure criteria in groundwater have been met, 2) if the data

trends indicates that MNA in addition to the previously completed source removal will be an effective remedy (concentration trends are decreasing), or 3) if additional evaluation of enhanced MNA is warranted.

(Closed) Settling Pond

- All CCR waste was removed from the Settling Pond by July 21, 2017.
- Four wells (MW-17, MW-18, MW-19B, MW-20) located around the perimeter of the (closed) Settling Pond comprise the monitoring network. MW-20 serves as the background monitoring well and MW-17, MW-18, and MW-19B serve as downgradient wells. No wells were installed or abandoned in 2020.
- Assessment monitoring continued in 2020 for the (closed) bottom ash impoundments. An annual assessment monitoring event was completed in April 2020 to sample the monitoring wells around the pond for all Appendix III and IV constituents plus TSS.
- During the October 2020 semi-annual assessment monitoring event, samples were collected from all the impoundment monitoring wells for Appendix III and detected Appendix IV COIs plus TSS.
- In accordance with CCR Rule 257.95(e), downgradient well concentrations from both the April and October 2020 assessment monitoring events 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 while there were one-time exceedances of GPS, they were not at statistically significant levels over GPS.
- Valmont Station Settling Pond current status is in assessment monitoring. The pond has been closed and CCR removed; therefore, all monitoring reflects post-CCR waste removal. Assessment monitoring will continue to evaluate whether clean closure criteria in groundwater have been met.

7.0 References

APEX Consulting Services, Inc. 2008. Letter to Jennifer McCarter, Xcel Energy. Valmont Station Ash Disposal Facility Additional Monitoring Well Installation. February 11, 2008.

HDR, 2015. Groundwater Sample Collection Standard Operating Procedure. October 28, 2015.

HDR, 2019a. Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule. Updated July 7, 2019.

HDR, 2019b. Conceptual Site Model and Assessment of Corrective Measures - Compliance with the Coal Combustion Residuals Rule Valmont Station. June 6, 2019.

HDR, 2019c. Groundwater Protection Standards and Determination of SSLs per 257.95(g). June 7, 2019.

HDR, 2021. Groundwater Monitoring Network Certification, Valmont Station. February 2021.

Xcel Energy, 2009. Valmont Station Coal Ash Disposal Facility Design and Operations Plan. January 2009.

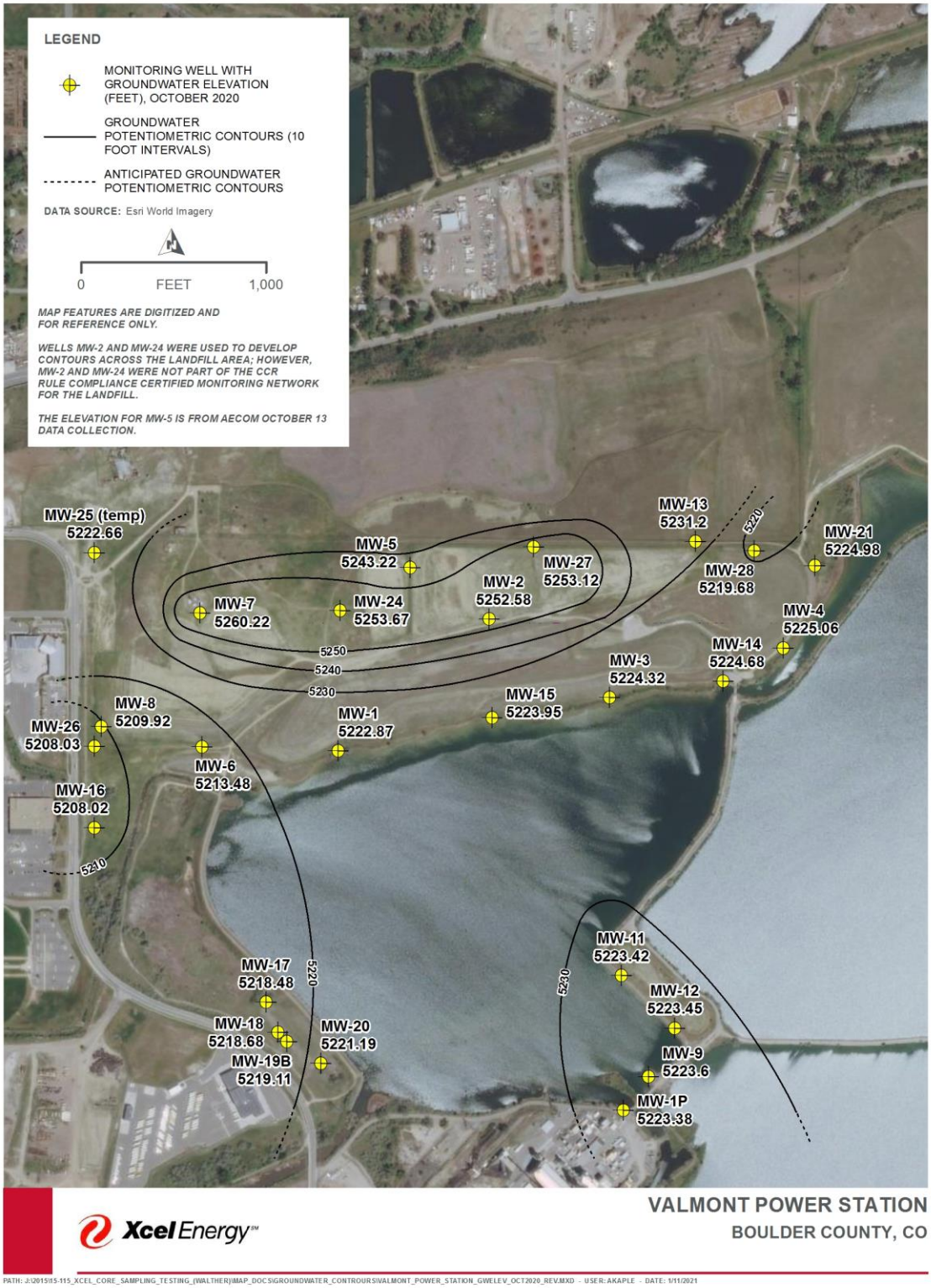
Appendix A

Monitoring types to comply with specific CCR Rule requirements

Monitoring types to comply with specific CCR Rule requirements			
Type of Monitoring	**Description**	**CCR Rule Reference**	**Constituents Analyzed**
Background Monitoring	Development of background water quality conditions for Appendix III and Appendix IV COIs	257.94(b)	Appendix III and IV and TSS
Detection Monitoring	Semi-annual detection monitoring for Appendix III COIs	257.94(c)	Appendix III
Assessment Monitoring	Detailed types below.	257.95	Detailed types below.
➢ Initial Assessment	Determining detected Appendix IV COIs	257.95(b)	Appendix IV
➢ Semi-Annual Assessment	Semi-annual assessment monitoring for Appendix III and detected Appendix IV COIs	257.95(d)	Appendix III and detected Appendix IV plus TSS
➢ Annual Assessment	Determining detected Appendix IV COIs on an annual basis. Starting in 2019 this will also count as the semi-annual sample event.	257.95(b)	Appendix III and all Appendix IV plus TSS
➢ Release Characterization Assessment	Occurs after detection of SSL above the GPS for the purpose of characterizing the nature and extent of the release.	257.95(g)(1)(iv)	Appendix III and detected Appendix IV plus TSS
➢ Corrective Action Assessment	Occurs after a facility has initiated corrective action. This is an PSCo designation (not in the Rule) added to Assessment Monitoring to differentiate that the samples were collected after the corrective action has been implemented.	N/A	Appendix III and detected Appendix IV plus TSS
Post-CCR Removal Monitoring	Occurs after the facility has been physically closed (e.g. all CCR waste removed from the impoundment). This is an PSCo designation added to other types of monitoring (e.g. Background Monitoring or Detection Monitoring.	N/A	Appendix III and/or Appendix IV as applicable plus TSS
Closure Confirmation Monitoring	Occurs after the facility has been closed (e.g. all CCR waste removed from the impoundment) in compliance with CCR Rule for certification of Clean Closure.	257.102	Appendix IV

Appendix B

Potentiometric Surface Map



PATH: J:\2015\15-115_XCEL_CORE_SAMPLING_TESTING_(WALTHER)\MAP_DOCS\GROUNDWATER_CONTROURS\VALMONT_POWER_STATION_GWELEV_OCT2020_REV.MXD - USER: AKAPLE - DATE: 1/11/2021

Appendix C

Laboratory Reports

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-135821-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
5/26/2020 11:43:10 AM

Darlene Bandy, Project Manager I
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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
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
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.
¤	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)

Job ID: 280-135821-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-135821-1

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 4/22/2020 4:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.5º C, 0.9º C, 2.6º C and 5.2º C.

Receipt Exceptions

No Custody seal was present on the cooler. It can be noted that the client dropped off the samples, so custody seals were not required. MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11)

TOTAL RECOVERABLE METALS

Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/27/2020 and 05/04/2020 and analyzed on 04/29/2020 and 05/05/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)

Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/27/2020 and 05/04/2020 and analyzed on 04/28/2020 and 05/05/2020.

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

TOTAL MERCURY

Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 04/27/2020 and 05/04/2020 and analyzed on 04/27/2020 and 05/05/2020.

Job ID: 280-135821-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

TOTAL DISSOLVED SOLIDS
Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/23/2020.

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

TOTAL SUSPENDED SOLIDS
Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/23/2020.

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

CORROSIVITY (PH)
Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/23/2020 and 04/24/2020.

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

ANIONS (28 DAYS)
Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/14/2020, 05/15/2020 and 05/16/2020.

Samples MW-1P (280-135821-1)[5X], MW-09 (280-135821-2)[5X], MW-4 (280-135821-4)[5X], MW-4 (280-135821-4)[50X], MW-28 (280-135821-5)[50X], MW-11 (280-135821-6)[5X], MW-14 (280-135821-7)[5X], MW-14 (280-135821-7)[50X], MW-21 (280-135821-8)[5X], MW-21 (280-135821-8)[50X], MW-13 (280-135821-9)[20X], MW-21D (280-135821-11)[5X] and MW-21D (280-135821-11)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 04/30/2020 and analyzed on 05/22/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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.

Job ID: 280-135821-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-228

Samples MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 04/30/2020 and analyzed on 05/13/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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-1P (280-135821-1), MW-09 (280-135821-2), MW-12 (280-135821-3), MW-4 (280-135821-4), MW-28 (280-135821-5), MW-11 (280-135821-6), MW-14 (280-135821-7), MW-21 (280-135821-8), MW-13 (280-135821-9), MW-27 (280-135821-10) and MW-21D (280-135821-11) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/22/2020.

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

Detection Summary

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-1P
Lab Sample ID: 280-135821-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0016	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.093		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	190		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00097	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0010	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0077	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0038	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.010		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	38		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.38	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	270		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	960		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-09
Lab Sample ID: 280-135821-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	10		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00076	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.037		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0056		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.11		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.031		0.0080	0.0017	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	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	71		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	470		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-12
Lab Sample ID: 280-135821-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	6.5		0.10	0.023	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-12 (Continued) — Lab Sample ID: 280-135821-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0057		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.16		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	110		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0031		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0048	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0032	J	0.0080	0.0017	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	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	29		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.68		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	57		5.0	1.0	mg/L	1		9056A	Total/NA
Total Suspended Solids	14		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	680		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 280-135821-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00084	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.016		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	380		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00084	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.020		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00059	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.27		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.19		0.0080	0.0017	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	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	560		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	9.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5800		250	52	mg/L	50		9056A	Total/NA
Total Suspended Solids	38		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	10000		200	94	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-28 — Lab Sample ID: 280-135821-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.8		0.10	0.023	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-28 (Continued) — Lab Sample ID: 280-135821-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.018		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	550		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00025	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0023		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	2.8		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.22		0.0080	0.0017	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	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	58		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	7.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3000		250	52	mg/L	50		9056A	Total/NA
Total Suspended Solids	30		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	7300		200	94	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 280-135821-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.1		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0044	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.087		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	200		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0098		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.016		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.014		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	67		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	540		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	26		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 280-135821-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0085		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-14 (Continued) — Lab Sample ID: 280-135821-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	490		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00024	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0019	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0026	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	1.5		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.13		0.0080	0.0017	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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	220		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.46	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3000		250	52	mg/L	50		9056A	Total/NA
Total Suspended Solids	7.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	5200		100	47	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-21 — Lab Sample ID: 280-135821-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0085		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	530		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00020	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0068	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	1.3		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.17		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	400		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2900		250	52	mg/L	50		9056A	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	5600		100	47	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 280-135821-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.023		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-13 (Continued) — Lab Sample ID: 280-135821-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	500		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00043	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0022		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0040	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.33		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.094		0.0080	0.0017	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	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	61		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.46	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2000		100	21	mg/L	20		9056A	Total/NA
Total Suspended Solids	160		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	3900		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-27 — Lab Sample ID: 280-135821-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.082	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.082		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	49		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0019	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0039	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0044	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.024		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.72		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	38		5.0	1.0	mg/L	1		9056A	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	370		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-21D — Lab Sample ID: 280-135821-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0085		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.014		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	480		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-21D (Continued)
Lab Sample ID: 280-135821-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00019	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0063	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	1.2		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.16		0.0080	0.0017	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	22.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	410		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.46	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2900		250	52	mg/L	50		9056A	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	5400		100	47	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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"
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-135821-1	MW-1P	Water	04/20/20 14:30	04/22/20 16:35	
280-135821-2	MW-09	Water	04/20/20 13:40	04/22/20 16:35	
280-135821-3	MW-12	Water	04/21/20 12:05	04/22/20 16:35	
280-135821-4	MW-4	Water	04/21/20 14:25	04/22/20 16:35	
280-135821-5	MW-28	Water	04/22/20 10:40	04/22/20 16:35	
280-135821-6	MW-11	Water	04/21/20 11:10	04/22/20 16:35	
280-135821-7	MW-14	Water	04/21/20 13:25	04/22/20 16:35	
280-135821-8	MW-21	Water	04/21/20 15:50	04/22/20 16:35	
280-135821-9	MW-13	Water	04/22/20 10:25	04/22/20 16:35	
280-135821-10	MW-27	Water	04/22/20 12:15	04/22/20 16:35	
280-135821-11	MW-21D	Water	04/21/20 16:50	04/22/20 16:35	

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

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:15	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	10		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:19	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	6.5		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:24	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:37	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:41	1

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.1		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:46	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:50	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.023	mg/L		04/27/20 14:00	04/29/20 17:55	1

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 14:56	1

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

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.082**	**J**	0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:01	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.3**		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:05	1

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

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
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 15:17	1
Arsenic	**0.0016**	**J**	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:17	1
Barium	**0.093**		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:17	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:17	1
Calcium	**190**		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:17	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:17	1
Cobalt	**0.00097**	**J**	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:17	1
Chromium	**0.0010**	**J**	0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:17	1
Molybdenum	**0.0077**	**J**	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:17	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:17	1
Selenium	**0.0038**	**J**	0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:17	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:17	1
Lithium	**0.010**		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:17	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
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 15:24	1
Arsenic	**0.00076**	**J**	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:24	1
Barium	**0.037**		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:24	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:24	1
Calcium	**130**		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:24	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:24	1
Cobalt	**0.0056**		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:24	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:24	1
Molybdenum	**0.11**		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:24	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:24	1
Selenium	ND		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:24	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:24	1
Lithium	**0.031**		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:24	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
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 15:27	1

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

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0057		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:27	1
Barium	0.16		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:27	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:27	1
Calcium	110		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:27	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:27	1
Cobalt	0.0031		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:27	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:27	1
Molybdenum	0.0048	J	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:27	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:27	1
Selenium	ND		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:27	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:27	1
Lithium	0.0032	J	0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:27	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
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 15:29	1
Arsenic	0.00084	J	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:29	1
Barium	0.016		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:29	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:29	1
Calcium	380		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:29	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:29	1
Cobalt	0.00084	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:29	1
Chromium	0.0015	J	0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:29	1
Molybdenum	0.020		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:29	1
Lead	0.00059	J	0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:29	1
Selenium	0.27		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:29	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:29	1
Lithium	0.19		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:29	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
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 15:32	1
Arsenic	0.018		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:32	1
Barium	0.015		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:32	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:32	1
Calcium	550		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:32	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:32	1
Cobalt	0.00025	J	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:32	1
Chromium	0.0023		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:32	1
Molybdenum	ND		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:32	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:32	1
Selenium	2.8		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:32	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:32	1
Lithium	0.22		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:32	1

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

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
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 15:34	1
Arsenic	**0.0044**	**J**	0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:34	1
Barium	**0.087**		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:34	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:34	1
Calcium	**200**		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:34	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:34	1
Cobalt	**0.0098**		0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:34	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:34	1
Molybdenum	**0.016**		0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:34	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:34	1
Selenium	ND		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:34	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:34	1
Lithium	**0.014**		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:34	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
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 15:37	1
Arsenic	**0.0085**		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:37	1
Barium	**0.020**		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:37	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:37	1
Calcium	**490**		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:37	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:37	1
Cobalt	**0.00024**	**J**	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:37	1
Chromium	**0.0019**	**J**	0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:37	1
Molybdenum	**0.0026**	**J**	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:37	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:37	1
Selenium	**1.5**		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:37	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:37	1
Lithium	**0.13**		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:37	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
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 15:39	1
Arsenic	**0.0085**		0.0050	0.00075	mg/L		04/27/20 14:00	04/28/20 15:39	1
Barium	**0.015**		0.0050	0.0022	mg/L		04/27/20 14:00	04/28/20 15:39	1
Beryllium	ND		0.0010	0.00031	mg/L		04/27/20 14:00	04/28/20 15:39	1
Calcium	**530**		1.0	0.58	mg/L		04/27/20 14:00	04/28/20 15:39	1
Cadmium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:39	1
Cobalt	**0.00020**	**J**	0.0010	0.00019	mg/L		04/27/20 14:00	04/28/20 15:39	1
Chromium	ND		0.0020	0.00098	mg/L		04/27/20 14:00	04/28/20 15:39	1
Molybdenum	**0.0068**	**J**	0.010	0.0011	mg/L		04/27/20 14:00	04/28/20 15:39	1
Lead	ND		0.0010	0.00045	mg/L		04/27/20 14:00	04/28/20 15:39	1
Selenium	**1.3**		0.0050	0.00089	mg/L		04/27/20 14:00	04/28/20 15:39	1
Thallium	ND		0.0010	0.00020	mg/L		04/27/20 14:00	04/28/20 15:39	1
Lithium	**0.17**		0.0080	0.0017	mg/L		04/27/20 14:00	04/28/20 15:39	1

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

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 16:56	1
Arsenic	**0.0017**	**J**	0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 16:56	1
Barium	**0.023**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 16:56	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 16:56	1
Calcium	**500**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 16:56	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:56	1
Cobalt	**0.00043**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 16:56	1
Chromium	**0.0022**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 16:56	1
Molybdenum	**0.0040**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 16:56	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 16:56	1
Selenium	**0.33**		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 16:56	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:56	1
Lithium	**0.094**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 16:56	1

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 16:59	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 16:59	1
Barium	**0.082**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 16:59	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 16:59	1
Calcium	**49**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 16:59	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:59	1
Cobalt	ND		0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 16:59	1
Chromium	**0.0019**	**J**	0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 16:59	1
Molybdenum	**0.0039**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 16:59	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 16:59	1
Selenium	**0.0044**	**J**	0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 16:59	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:59	1
Lithium	**0.024**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 16:59	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:01	1
Arsenic	**0.0085**		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:01	1
Barium	**0.014**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:01	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:01	1
Calcium	**480**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:01	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:01	1
Cobalt	**0.00019**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:01	1
Chromium	ND		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:01	1
Molybdenum	**0.0063**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:01	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:01	1
Selenium	**1.2**		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:01	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:01	1
Lithium	**0.16**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:01	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
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 18:48	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
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 18:50	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
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 18:52	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
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 18:54	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
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 18:56	1

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
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 18:58	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
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 19:00	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
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 19:06	1

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:29	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:31	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:33	1

General Chemistry

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			04/23/20 22:47	1
Temperature	20.5	HF	1.0	1.0	Degrees C			04/23/20 22:47	1
Chloride	38		3.0	1.0	mg/L			05/14/20 23:37	1
Fluoride	0.38	J	0.50	0.17	mg/L			05/14/20 23:37	1
Sulfate	270		25	5.2	mg/L			05/15/20 21:37	5
Total Suspended Solids	4.0		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	960		20	9.4	mg/L			04/23/20 07:35	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/23/20 23:02	1
Temperature	21.0	HF	1.0	1.0	Degrees C			04/23/20 23:02	1
Chloride	71		3.0	1.0	mg/L			05/14/20 23:54	1
Fluoride	1.8		0.50	0.17	mg/L			05/14/20 23:54	1
Sulfate	470		25	5.2	mg/L			05/15/20 21:53	5
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L			04/23/20 07:35	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
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			04/24/20 23:15	1
Temperature	22.3	HF	1.0	1.0	Degrees C			04/24/20 23:15	1
Chloride	29		3.0	1.0	mg/L			05/15/20 00:10	1
Fluoride	0.68		0.50	0.17	mg/L			05/15/20 00:10	1
Sulfate	57		5.0	1.0	mg/L			05/15/20 00:10	1
Total Suspended Solids	14		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	680		20	9.4	mg/L			04/23/20 07:35	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
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			04/23/20 23:12	1

General Chemistry (Continued)

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	21.6	HF	1.0	1.0	Degrees C			04/23/20 23:12	1
Chloride	560		15	5.1	mg/L			05/15/20 22:10	5
Fluoride	9.0		0.50	0.17	mg/L			05/15/20 00:26	1
Sulfate	5800		250	52	mg/L			05/15/20 23:48	50
Total Suspended Solids	38		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	10000		200	94	mg/L			04/23/20 07:35	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
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			04/23/20 23:17	1
Temperature	21.2	HF	1.0	1.0	Degrees C			04/23/20 23:17	1
Chloride	58		3.0	1.0	mg/L			05/15/20 00:43	1
Fluoride	7.0		0.50	0.17	mg/L			05/15/20 00:43	1
Sulfate	3000		250	52	mg/L			05/15/20 22:26	50
Total Suspended Solids	30		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	7300		200	94	mg/L			04/23/20 07:35	1

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
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			04/23/20 23:23	1
Temperature	21.0	HF	1.0	1.0	Degrees C			04/23/20 23:23	1
Chloride	67		3.0	1.0	mg/L			05/15/20 00:59	1
Fluoride	1.3		0.50	0.17	mg/L			05/15/20 00:59	1
Sulfate	540		25	5.2	mg/L			05/15/20 22:42	5
Total Suspended Solids	26		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			04/23/20 07:35	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
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			04/23/20 23:27	1
Temperature	20.8	HF	1.0	1.0	Degrees C			04/23/20 23:27	1
Chloride	220		15	5.1	mg/L			05/16/20 00:37	5
Fluoride	0.46	J	0.50	0.17	mg/L			05/15/20 01:49	1
Sulfate	3000		250	52	mg/L			05/16/20 00:54	50
Total Suspended Solids	7.2		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	5200		100	47	mg/L			04/23/20 07:35	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
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			04/23/20 23:31	1
Temperature	20.9	HF	1.0	1.0	Degrees C			04/23/20 23:31	1
Chloride	400		15	5.1	mg/L			05/16/20 01:10	5

General Chemistry (Continued)

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.45	J	0.50	0.17	mg/L			05/15/20 02:05	1
Sulfate	2900		250	52	mg/L			05/16/20 01:27	50
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	5600		100	47	mg/L			04/23/20 07:35	1

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
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			04/23/20 23:36	1
Temperature	21.4	HF	1.0	1.0	Degrees C			04/23/20 23:36	1
Chloride	61		3.0	1.0	mg/L			05/15/20 02:21	1
Fluoride	0.46	J	0.50	0.17	mg/L			05/15/20 02:21	1
Sulfate	2000		100	21	mg/L			05/16/20 01:43	20
Total Suspended Solids	160		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	3900		40	19	mg/L			04/23/20 07:35	1

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/23/20 23:40	1
Temperature	21.7	HF	1.0	1.0	Degrees C			04/23/20 23:40	1
Chloride	14		3.0	1.0	mg/L			05/15/20 02:38	1
Fluoride	0.72		0.50	0.17	mg/L			05/15/20 02:38	1
Sulfate	38		5.0	1.0	mg/L			05/15/20 02:38	1
Total Suspended Solids	10		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	370		10	4.7	mg/L			04/23/20 07:35	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-11
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			04/23/20 23:44	1
Temperature	22.1	HF	1.0	1.0	Degrees C			04/23/20 23:44	1
Chloride	410		15	5.1	mg/L			05/16/20 02:00	5
Fluoride	0.46	J	0.50	0.17	mg/L			05/15/20 02:54	1
Sulfate	2900		250	52	mg/L			05/16/20 02:16	50
Total Suspended Solids	4.4		4.0	1.1	mg/L			04/23/20 07:37	1
Total Dissolved Solids (TDS)	5400		100	47	mg/L			04/23/20 07:35	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101		0.0660	0.0666	1.00	0.0837	pCi/L	04/30/20 09:40	05/22/20 04:49	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110	04/30/20 09:40	05/22/20 04:49	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0958	U	0.0858	0.0862	1.00	0.133	pCi/L	04/30/20 09:40	05/22/20 04:49	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110	04/30/20 09:40	05/22/20 04:49	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0882	U	0.0654	0.0659	1.00	0.0910	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.275**		0.106	0.108	1.00	0.111	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.6		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.708**		0.148	0.162	1.00	0.105	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.178**		0.0826	0.0841	1.00	0.0946	pCi/L	04/30/20 09:40	05/22/20 04:50	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.311		0.108	0.112	1.00	0.115	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.157		0.0824	0.0836	1.00	0.101	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.154		0.0865	0.0876	1.00	0.114	pCi/L	04/30/20 09:40	05/22/20 04:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110	04/30/20 09:40	05/22/20 04:50	1

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108		0.0750	0.0756	1.00	0.105	pCi/L	04/30/20 09:40	05/22/20 06:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	04/30/20 09:40	05/22/20 06:38	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.218		0.0915	0.0936	1.00	0.101	pCi/L	04/30/20 09:40	05/22/20 06:38	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	04/30/20 09:40	05/22/20 06:38	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.101	U	0.228	0.228	1.00	0.392	pCi/L	04/30/20 11:18	05/13/20 11:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110	04/30/20 11:18	05/13/20 11:41	1
Y Carrier	84.5		40 - 110	04/30/20 11:18	05/13/20 11:41	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.532**		0.256	0.261	1.00	0.374	pCi/L	04/30/20 11:18	05/13/20 11:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110	04/30/20 11:18	05/13/20 11:41	1
Y Carrier	84.1		40 - 110	04/30/20 11:18	05/13/20 11:41	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.390	U	0.264	0.267	1.00	0.411	pCi/L	04/30/20 11:18	05/13/20 11:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110	04/30/20 11:18	05/13/20 11:41	1
Y Carrier	81.9		40 - 110	04/30/20 11:18	05/13/20 11:41	1

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.536**		0.247	0.252	1.00	0.356	pCi/L	04/30/20 11:18	05/13/20 11:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.6		40 - 110	04/30/20 11:18	05/13/20 11:41	1
Y Carrier	85.2		40 - 110	04/30/20 11:18	05/13/20 11:41	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.945		0.263	0.277	1.00	0.328	pCi/L	04/30/20 11:18	05/13/20 11:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:41*	*1*
Y Carrier	*84.1*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:41*	*1*

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.364		0.232	0.234	1.00	0.356	pCi/L	04/30/20 11:18	05/13/20 11:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*
Y Carrier	*84.9*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.340		0.213	0.215	1.00	0.323	pCi/L	04/30/20 11:18	05/13/20 11:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*
Y Carrier	*84.9*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.121	U	0.205	0.205	1.00	0.347	pCi/L	04/30/20 11:18	05/13/20 11:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*
Y Carrier	*82.2*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:42*	*1*

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.189	U	0.224	0.225	1.00	0.370	pCi/L	04/30/20 11:18	05/13/20 11:42	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110	04/30/20 11:18	05/13/20 11:42	1
Y Carrier	81.5		40 - 110	04/30/20 11:18	05/13/20 11:42	1

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.305	U	0.270	0.271	1.00	0.435	pCi/L	04/30/20 11:18	05/13/20 11:45	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	04/30/20 11:18	05/13/20 11:45	1
Y Carrier	84.5		40 - 110	04/30/20 11:18	05/13/20 11:45	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.373	U	0.268	0.270	1.00	0.422	pCi/L	04/30/20 11:18	05/13/20 11:45	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	04/30/20 11:18	05/13/20 11:45	1
Y Carrier	83.7		40 - 110	04/30/20 11:18	05/13/20 11:45	1

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

Client Sample ID: MW-1P
Date Collected: 04/20/20 14:30
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.202	U	0.237	0.238	5.00	0.392	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-09
Date Collected: 04/20/20 13:40
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.628**		0.270	0.275	5.00	0.374	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.478**		0.272	0.275	5.00	0.411	pCi/L		05/22/20 09:31	1

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

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.811		0.269	0.274	5.00	0.356	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.65		0.302	0.321	5.00	0.328	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.542		0.246	0.249	5.00	0.356	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.651		0.239	0.242	5.00	0.323	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.278	U	0.221	0.221	5.00	0.347	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135821-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.344	U	0.240	0.241	5.00	0.370	pCi/L		05/22/20 09:31	1

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.413	U	0.280	0.281	5.00	0.435	pCi/L		05/22/20 09:31	1

Client Sample ID: MW-21D
Date Collected: 04/21/20 16:50
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.592**		0.283	0.286	5.00	0.422	pCi/L		05/22/20 09:31	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

Lab Sample ID: MB 240-433021/1-A
Matrix: Water
Analysis Batch: 433334

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 13:29	1

Lab Sample ID: LCS 240-433021/2-A
Matrix: Water
Analysis Batch: 433334

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.04		mg/L		104	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
Calcium	ND		1.0	0.58	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
Cobalt	ND		0.0010	0.00019	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
Molybdenum	ND		0.010	0.0011	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
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
Lithium	ND		0.0080	0.0017	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

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

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
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
Calcium	25.0	24.9		mg/L		100	80 - 120
Cadmium	0.500	0.482		mg/L		96	80 - 120
Cobalt	0.500	0.501		mg/L		100	80 - 120
Chromium	0.500	0.515		mg/L		103	80 - 120
Molybdenum	0.500	0.500		mg/L		100	80 - 120
Lead	0.500	0.507		mg/L		101	80 - 120
Selenium	1.00	0.932		mg/L		93	80 - 120
Thallium	1.00	0.958		mg/L		96	80 - 120
Lithium	0.500	0.473		mg/L		95	80 - 120

Lab Sample ID: MB 240-433021/1-A
Matrix: Water
Analysis Batch: 433358

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 16:17	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 16:17	1
Barium	ND		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 16:17	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 16:17	1
Calcium	ND		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 16:17	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:17	1
Cobalt	ND		0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 16:17	1
Chromium	ND		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 16:17	1
Molybdenum	ND		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 16:17	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 16:17	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 16:17	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:17	1
Lithium	ND		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 16:17	1

Lab Sample ID: LCS 240-433021/3-A
Matrix: Water
Analysis Batch: 433358

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0964		mg/L		96	80 - 120
Arsenic	1.00	0.945		mg/L		94	80 - 120
Barium	1.00	0.930		mg/L		93	80 - 120
Beryllium	0.500	0.463		mg/L		93	80 - 120
Calcium	25.0	23.5		mg/L		94	80 - 120
Cadmium	0.500	0.448		mg/L		90	80 - 120
Cobalt	0.500	0.487		mg/L		97	80 - 120
Chromium	0.500	0.477		mg/L		95	80 - 120
Molybdenum	0.500	0.481		mg/L		96	80 - 120
Lead	0.500	0.473		mg/L		95	80 - 120
Selenium	1.00	0.871		mg/L		87	80 - 120
Thallium	1.00	0.887		mg/L		89	80 - 120

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

Lab Sample ID: LCS 240-433021/3-A
Matrix: Water
Analysis Batch: 433358

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.500	0.433		mg/L		87	80 - 120

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

Lab Sample ID: MB 240-433022/1-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433022

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 12:58	1

Lab Sample ID: LCS 240-433022/2-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433022

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.79		ug/L		96	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-492705/30
Matrix: Water
Analysis Batch: 492705

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 280-492846/30
Matrix: Water
Analysis Batch: 492846

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 280-494833/6
Matrix: Water
Analysis Batch: 494833

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			05/14/20 11:32	1
Fluoride	ND		0.50	0.17	mg/L			05/14/20 11:32	1
Sulfate	ND		5.0	1.0	mg/L			05/14/20 11:32	1

Lab Sample ID: LCS 280-494833/4
Matrix: Water
Analysis Batch: 494833

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.0		mg/L		97	90 - 110
Fluoride	5.00	5.17		mg/L		103	90 - 110
Sulfate	100	95.0		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-494833/5
Matrix: Water
Analysis Batch: 494833

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	96.3		mg/L		96	90 - 110	1	10
Fluoride	5.00	5.13		mg/L		103	90 - 110	1	10
Sulfate	100	94.3		mg/L		94	90 - 110	1	10

Lab Sample ID: MRL 280-494833/3
Matrix: Water
Analysis Batch: 494833

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
Fluoride	0.500	0.519		mg/L		104	50 - 150
Sulfate	5.00	4.24	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-495041/6
Matrix: Water
Analysis Batch: 495041

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			05/15/20 13:02	1
Sulfate	ND		5.0	1.0	mg/L			05/15/20 13:02	1

Lab Sample ID: LCS 280-495041/4
Matrix: Water
Analysis Batch: 495041

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.7		mg/L		99	90 - 110
Sulfate	100	97.4		mg/L		97	90 - 110

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

Lab Sample ID: LCSD 280-495041/5
Matrix: Water
Analysis Batch: 495041

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	98.2		mg/L		98	90 - 110	0	10
Sulfate			100	97.7		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-495041/3
Matrix: Water
Analysis Batch: 495041

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	5.00		mg/L		100	50 - 150		
Sulfate			5.00	5.01		mg/L		100	50 - 150		

Lab Sample ID: 280-135821-6 MS
Matrix: Water
Analysis Batch: 495041

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	540		250	776		mg/L		94	80 - 120		

Lab Sample ID: 280-135821-6 MSD
Matrix: Water
Analysis Batch: 495041

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	540		250	778		mg/L		96	80 - 120	0	20

Lab Sample ID: 280-135821-6 DU
Matrix: Water
Analysis Batch: 495041

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	540			529		mg/L				2	15

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

Lab Sample ID: MB 280-492561/1
Matrix: Water
Analysis Batch: 492561

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			04/23/20 07:37	1

Lab Sample ID: LCS 280-492561/2
Matrix: Water
Analysis Batch: 492561

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	84.0		mg/L		84	79 - 114		

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

Lab Sample ID: LCSD 280-492561/3
Matrix: Water
Analysis Batch: 492561

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	93.6		mg/L		94	79 - 114	11	20

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-492559/1
Matrix: Water
Analysis Batch: 492559

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			04/23/20 07:35	1

Lab Sample ID: LCS 280-492559/2
Matrix: Water
Analysis Batch: 492559

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	489		mg/L		98	93 - 110		

Lab Sample ID: LCSD 280-492559/3
Matrix: Water
Analysis Batch: 492559

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	485		mg/L		97	93 - 110	1	20

Lab Sample ID: 280-135821-11 DU
Matrix: Water
Analysis Batch: 492559

Client Sample ID: MW-21D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	5400			5600		mg/L				3	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469233/21-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469233

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01846	U	0.0369	0.0369	1.00	0.0953	pCi/L	04/30/20 09:40	05/22/20 06:38	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/30/20 09:40*	*05/22/20 06:38*	*1*

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

Lab Sample ID: LCS 160-469233/1-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469233

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.45		1.10	1.00	0.120	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*

Lab Sample ID: LCSD 160-469233/2-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469233

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.49		1.10	1.00	0.110	pCi/L	92	75 - 125	0.02	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*89.9*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469239/21-A
Matrix: Water
Analysis Batch: 470297

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469239

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05587	U	0.244	0.244	1.00	0.427	pCi/L	04/30/20 11:18	05/13/20 11:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:46*	*1*
Y Carrier	*84.5*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:46*	*1*

Lab Sample ID: LCS 160-469239/1-A
Matrix: Water
Analysis Batch: 470272

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469239

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.85	8.531		1.05	1.00	0.460	pCi/L	96	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*
Y Carrier	*79.6*		*40 - 110*

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Lab Sample ID: LCSD 160-469239/2-A
Matrix: Water
Analysis Batch: 470272

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469239

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.85	8.040		0.988	1.00	0.427	pCi/L	91	75 - 125	0.24	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*89.9*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Metals

Prep Batch: 432227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total Recoverable	Water	3005A	
280-135821-2	MW-09	Total Recoverable	Water	3005A	
280-135821-3	MW-12	Total Recoverable	Water	3005A	
280-135821-4	MW-4	Total Recoverable	Water	3005A	
280-135821-5	MW-28	Total Recoverable	Water	3005A	
280-135821-6	MW-11	Total Recoverable	Water	3005A	
280-135821-7	MW-14	Total Recoverable	Water	3005A	
280-135821-8	MW-21	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
280-135821-1	MW-1P	Total/NA	Water	7470A	
280-135821-2	MW-09	Total/NA	Water	7470A	
280-135821-3	MW-12	Total/NA	Water	7470A	
280-135821-4	MW-4	Total/NA	Water	7470A	
280-135821-5	MW-28	Total/NA	Water	7470A	
280-135821-6	MW-11	Total/NA	Water	7470A	
280-135821-7	MW-14	Total/NA	Water	7470A	
280-135821-8	MW-21	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
280-135821-1	MW-1P	Total/NA	Water	7470A	432228
280-135821-2	MW-09	Total/NA	Water	7470A	432228
280-135821-3	MW-12	Total/NA	Water	7470A	432228
280-135821-4	MW-4	Total/NA	Water	7470A	432228
280-135821-5	MW-28	Total/NA	Water	7470A	432228
280-135821-6	MW-11	Total/NA	Water	7470A	432228
280-135821-7	MW-14	Total/NA	Water	7470A	432228
280-135821-8	MW-21	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
280-135821-1	MW-1P	Total Recoverable	Water	6020A	432227
280-135821-2	MW-09	Total Recoverable	Water	6020A	432227
280-135821-3	MW-12	Total Recoverable	Water	6020A	432227
280-135821-4	MW-4	Total Recoverable	Water	6020A	432227
280-135821-5	MW-28	Total Recoverable	Water	6020A	432227
280-135821-6	MW-11	Total Recoverable	Water	6020A	432227
280-135821-7	MW-14	Total Recoverable	Water	6020A	432227
280-135821-8	MW-21	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

Metals

Analysis Batch: 432688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total Recoverable	Water	6010C	432227
280-135821-2	MW-09	Total Recoverable	Water	6010C	432227
280-135821-3	MW-12	Total Recoverable	Water	6010C	432227
280-135821-4	MW-4	Total Recoverable	Water	6010C	432227
280-135821-5	MW-28	Total Recoverable	Water	6010C	432227
280-135821-6	MW-11	Total Recoverable	Water	6010C	432227
280-135821-7	MW-14	Total Recoverable	Water	6010C	432227
280-135821-8	MW-21	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

Prep Batch: 433021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total Recoverable	Water	3005A	
280-135821-10	MW-27	Total Recoverable	Water	3005A	
280-135821-11	MW-21D	Total Recoverable	Water	3005A	
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-433021/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-433021/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 433022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total/NA	Water	7470A	
280-135821-10	MW-27	Total/NA	Water	7470A	
280-135821-11	MW-21D	Total/NA	Water	7470A	
MB 240-433022/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-433022/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 433334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total Recoverable	Water	6010C	433021
280-135821-10	MW-27	Total Recoverable	Water	6010C	433021
280-135821-11	MW-21D	Total Recoverable	Water	6010C	433021
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	6010C	433021
LCS 240-433021/2-A	Lab Control Sample	Total Recoverable	Water	6010C	433021

Analysis Batch: 433338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total/NA	Water	7470A	433022
280-135821-10	MW-27	Total/NA	Water	7470A	433022
280-135821-11	MW-21D	Total/NA	Water	7470A	433022
MB 240-433022/1-A	Method Blank	Total/NA	Water	7470A	433022
LCS 240-433022/2-A	Lab Control Sample	Total/NA	Water	7470A	433022

Analysis Batch: 433358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total Recoverable	Water	6020A	433021
280-135821-10	MW-27	Total Recoverable	Water	6020A	433021
280-135821-11	MW-21D	Total Recoverable	Water	6020A	433021
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	6020A	433021
LCS 240-433021/3-A	Lab Control Sample	Total Recoverable	Water	6020A	433021

General Chemistry

Analysis Batch: 492559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	SM2540 C	
280-135821-2	MW-09	Total/NA	Water	SM2540 C	
280-135821-3	MW-12	Total/NA	Water	SM2540 C	
280-135821-4	MW-4	Total/NA	Water	SM2540 C	
280-135821-5	MW-28	Total/NA	Water	SM2540 C	
280-135821-6	MW-11	Total/NA	Water	SM2540 C	
280-135821-7	MW-14	Total/NA	Water	SM2540 C	
280-135821-8	MW-21	Total/NA	Water	SM2540 C	
280-135821-9	MW-13	Total/NA	Water	SM2540 C	
280-135821-10	MW-27	Total/NA	Water	SM2540 C	
280-135821-11	MW-21D	Total/NA	Water	SM2540 C	
MB 280-492559/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-492559/2	Lab Control Sample	Total/NA	Water	SM2540 C	
LCSD 280-492559/3	Lab Control Sample Dup	Total/NA	Water	SM2540 C	
280-135821-11 DU	MW-21D	Total/NA	Water	SM2540 C	

Analysis Batch: 492561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	SM 2540D	
280-135821-2	MW-09	Total/NA	Water	SM 2540D	
280-135821-3	MW-12	Total/NA	Water	SM 2540D	
280-135821-4	MW-4	Total/NA	Water	SM 2540D	
280-135821-5	MW-28	Total/NA	Water	SM 2540D	
280-135821-6	MW-11	Total/NA	Water	SM 2540D	
280-135821-7	MW-14	Total/NA	Water	SM 2540D	
280-135821-8	MW-21	Total/NA	Water	SM 2540D	
280-135821-9	MW-13	Total/NA	Water	SM 2540D	
280-135821-10	MW-27	Total/NA	Water	SM 2540D	
280-135821-11	MW-21D	Total/NA	Water	SM 2540D	
MB 280-492561/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-492561/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-492561/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 492705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	9040B	
280-135821-2	MW-09	Total/NA	Water	9040B	
280-135821-4	MW-4	Total/NA	Water	9040B	
280-135821-5	MW-28	Total/NA	Water	9040B	
280-135821-6	MW-11	Total/NA	Water	9040B	
280-135821-7	MW-14	Total/NA	Water	9040B	
280-135821-8	MW-21	Total/NA	Water	9040B	
280-135821-9	MW-13	Total/NA	Water	9040B	
280-135821-10	MW-27	Total/NA	Water	9040B	
280-135821-11	MW-21D	Total/NA	Water	9040B	
LCS 280-492705/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 492846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-3	MW-12	Total/NA	Water	9040B	
LCS 280-492846/30	Lab Control Sample	Total/NA	Water	9040B	

General Chemistry

Analysis Batch: 494833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	9056A	
280-135821-2	MW-09	Total/NA	Water	9056A	
280-135821-3	MW-12	Total/NA	Water	9056A	
280-135821-4	MW-4	Total/NA	Water	9056A	
280-135821-5	MW-28	Total/NA	Water	9056A	
280-135821-6	MW-11	Total/NA	Water	9056A	
280-135821-7	MW-14	Total/NA	Water	9056A	
280-135821-8	MW-21	Total/NA	Water	9056A	
280-135821-9	MW-13	Total/NA	Water	9056A	
280-135821-10	MW-27	Total/NA	Water	9056A	
280-135821-11	MW-21D	Total/NA	Water	9056A	
MB 280-494833/6	Method Blank	Total/NA	Water	9056A	
LCS 280-494833/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-494833/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-494833/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 495041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	9056A	
280-135821-2	MW-09	Total/NA	Water	9056A	
280-135821-4	MW-4	Total/NA	Water	9056A	
280-135821-4	MW-4	Total/NA	Water	9056A	
280-135821-5	MW-28	Total/NA	Water	9056A	
280-135821-6	MW-11	Total/NA	Water	9056A	
280-135821-7	MW-14	Total/NA	Water	9056A	
280-135821-7	MW-14	Total/NA	Water	9056A	
280-135821-8	MW-21	Total/NA	Water	9056A	
280-135821-8	MW-21	Total/NA	Water	9056A	
280-135821-9	MW-13	Total/NA	Water	9056A	
280-135821-11	MW-21D	Total/NA	Water	9056A	
280-135821-11	MW-21D	Total/NA	Water	9056A	
MB 280-495041/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495041/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495041/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495041/3	Lab Control Sample	Total/NA	Water	9056A	
280-135821-6 MS	MW-11	Total/NA	Water	9056A	
280-135821-6 MSD	MW-11	Total/NA	Water	9056A	
280-135821-6 DU	MW-11	Total/NA	Water	9056A	

Rad

Prep Batch: 469233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	PrecSep-21	
280-135821-2	MW-09	Total/NA	Water	PrecSep-21	
280-135821-3	MW-12	Total/NA	Water	PrecSep-21	
280-135821-4	MW-4	Total/NA	Water	PrecSep-21	
280-135821-5	MW-28	Total/NA	Water	PrecSep-21	
280-135821-6	MW-11	Total/NA	Water	PrecSep-21	
280-135821-7	MW-14	Total/NA	Water	PrecSep-21	
280-135821-8	MW-21	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 469233 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-9	MW-13	Total/NA	Water	PrecSep-21	
280-135821-10	MW-27	Total/NA	Water	PrecSep-21	
280-135821-11	MW-21D	Total/NA	Water	PrecSep-21	
MB 160-469233/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469233/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469233/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135821-1	MW-1P	Total/NA	Water	PrecSep_0	
280-135821-2	MW-09	Total/NA	Water	PrecSep_0	
280-135821-3	MW-12	Total/NA	Water	PrecSep_0	
280-135821-4	MW-4	Total/NA	Water	PrecSep_0	
280-135821-5	MW-28	Total/NA	Water	PrecSep_0	
280-135821-6	MW-11	Total/NA	Water	PrecSep_0	
280-135821-7	MW-14	Total/NA	Water	PrecSep_0	
280-135821-8	MW-21	Total/NA	Water	PrecSep_0	
280-135821-9	MW-13	Total/NA	Water	PrecSep_0	
280-135821-10	MW-27	Total/NA	Water	PrecSep_0	
280-135821-11	MW-21D	Total/NA	Water	PrecSep_0	
MB 160-469239/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469239/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469239/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-1P
Lab Sample ID: 280-135821-1
Date Collected: 04/20/20 14:30
Matrix: Water
Date Received: 04/22/20 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 17:15	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 15:17	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 18:48	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 22:47	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/14/20 23:37	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/15/20 21:37	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.12 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:49	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.12 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:41	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-09
Lab Sample ID: 280-135821-2
Date Collected: 04/20/20 13:40
Matrix: Water
Date Received: 04/22/20 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	432227	04/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432688	04/29/20 17:19	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 15:24	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 18:50	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:02	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/14/20 23:54	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/15/20 21:53	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.17 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:49	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.17 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:41	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-12
Date Collected: 04/21/20 12:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-3
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 17:24	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 15:27	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 18:52	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492846	04/24/20 23:15	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 00:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.17 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.17 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:41	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-4
Date Collected: 04/21/20 14:25
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-4
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 17:37	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 15:29	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 18:54	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:12	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 00:26	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/15/20 22:10	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495041	05/15/20 23:48	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	5 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.23 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.23 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:41	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-28
Date Collected: 04/22/20 10:40
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-5
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 17:41	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 15:32	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 18:56	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:17	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 00:43	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495041	05/15/20 22:26	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	5 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.18 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.18 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:41	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-11
Date Collected: 04/21/20 11:10
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-6
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 17:46	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 15:34	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 18:58	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:23	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 00:59	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/15/20 22:42	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.05 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.05 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:42	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-14
Date Collected: 04/21/20 13:25
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-7
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 17:50	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 15:37	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 19:00	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:27	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 01:49	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/16/20 00:37	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495041	05/16/20 00:54	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	10 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.16 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.16 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:42	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-21
Date Collected: 04/21/20 15:50
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-8
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 17:55	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 15:39	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 19:06	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:31	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 02:05	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/16/20 01:10	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495041	05/16/20 01:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	10 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.24 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.24 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:42	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-13
Date Collected: 04/22/20 10:25
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-9
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 14:56	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 16:56	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:29	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:36	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 02:21	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495041	05/16/20 01:43	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.18 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 04:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.18 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470272	05/13/20 11:42	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Client Sample ID: MW-27
Date Collected: 04/22/20 12:15
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135821-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:01	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 16:59	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:31	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:40	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 02:38	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.32 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 06:38	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.32 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470297	05/13/20 11:45	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	SMP	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-21D
Lab Sample ID: 280-135821-11
Date Collected: 04/21/20 16:50
Matrix: Water
Date Received: 04/22/20 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:05	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:01	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:33	SLD	TAL CAN
Total/NA	Analysis	9040B		1			492705	04/23/20 23:44	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 02:54	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495041	05/16/20 02:00	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495041	05/16/20 02:16	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492561	04/23/20 07:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	10 mL	100 mL	492559	04/23/20 07:35	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.23 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 06:38	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.23 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470297	05/13/20 11:45	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	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
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	04-30-21
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	06-30-20
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
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing TestAmerica

Client Information	Sampler: A. Morgan	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-98365-29694.1
Client Contact: Molly Reeves	Phone: 832-418-3307	E-Mail: darlene.bandy@testamericainc.com		Page: Page ~~1 of 3~~ 1 of 1
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A	9040B, 9056A_28D	2540C_Calcd, 2540D	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW-1P	4-20-20	1430	G	Water	N		X	X	X	X	7	Contact Molly Reeves
MW-09	4-20-20	~~1335~~ AR 1340	G	Water	N		X	X	X	X	7	with Questions at
MW-12	4-21-20	1205	G	Water	N		X	X	X	X	7	734-263-7138
MW-4	4-21-20	1425	G	Water	N		X	X	X	X	7	
MW-28	4-22-20	1040	G	Water	N		X	X	X	X	7	
MW-11	4-21-20	1110	G	Water	N		X	X	X	X	7	
MW-14	4-21-20	1325	G	Water	N		X	X	X	X	7	
MW-21	4-21-20	1550	G	Water	N		X	X	X	X	7	
MW-13	4-22-20	1025	G	Water	N		X	X	X	X	7	
MW-27	4-22-20	1215	G	Water	N		X	X	X	X	7	
MW-21D	4-21-20	1650	G	Water	N		X	X	X	X	7	

280-135821 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4-22-20/ 1635	HDR		4/22/20 1635	TAD
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 0.6, 0.2, 2.3, 4.9 IR9 +0.3 BB 4/22/20

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521910.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135821-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/21/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-1P (280-135821-1)	4/20/20	14:30 Mountain		Water			X	X	X	2	
MW-09 (280-135821-2)	4/20/20	13:40 Mountain		Water			X	X	X	2	
MW-12 (280-135821-3)	4/21/20	12:05 Mountain		Water			X	X	X	2	
MW-4 (280-135821-4)	4/21/20	14:25 Mountain		Water			X	X	X	2	
MW-28 (280-135821-5)	4/22/20	10:40 Mountain		Water			X	X	X	2	
MW-11 (280-135821-6)	4/21/20	11:10 Mountain		Water			X	X	X	2	
MW-14 (280-135821-7)	4/21/20	13:25 Mountain		Water			X	X	X	2	
MW-21 (280-135821-8)	4/21/20	15:50 Mountain		Water			X	X	X	2	
MW-13 (280-135821-9)	4/22/20	10:25 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/23/2020 1445		FED EX		
2	FED EX			[signature]	4/24/2020 0828	EA SL
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521910.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135821-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/21/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-27 (280-135821-10)	4/22/20	12:15 Mountain		Water			X	X	X	2	
MW-21D (280-135821-11)	4/21/20	16:50 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the labo

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/23/2020 1445		FED EX		
Relinquished by: FED EX	Date/Time:	Company	Received by:	Date/Time: 4/24/2020 0828	Company ETA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

10-9/11-6

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521909.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135821-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/18/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								S1
MW-1P (280-135821-1)	4/20/20	14:30 Mountain		Water			X	X	X	2	Use Collision Cell
MW-09 (280-135821-2)	4/20/20	13:40 Mountain		Water			X	X	X	2	Use Collision Cell
MW-12 (280-135821-3)	4/21/20	12:05 Mountain		Water			X	X	X	2	Use Collision Cell
MW-4 (280-135821-4)	4/21/20	14:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-28 (280-135821-5)	4/22/20	10:40 Mountain		Water			X	X	X	2	Use Collision Cell
MW-11 (280-135821-6)	4/21/20	11:10 Mountain		Water			X	X	X	2	Use Collision Cell
MW-14 (280-135821-7)	4/21/20	13:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-21 (280-135821-8)	4/21/20	15:50 Mountain		Water			X	X	X	2	Use Collision Cell
MW-13 (280-135821-9)	4/22/20	10:25 Mountain		Water			X	X	X	2	Use Collision Cell

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

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

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	4/23/2020 1405			4-24-20 1010	TAC
Relinquished by:					
Relinquished by:					

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

Ver: 01/16/2019

5/26/2020

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521909.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135821-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/18/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-27 (280-135821-10)	4/22/20	12:15 Mountain		Water			X	X	X	2	Use Collision Cell
MW-21D (280-135821-11)	4/21/20	16:50 Mountain		Water			X	X	X	2	Use Collision Cell

S1

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 labo

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/23/2020 1405			4-24-20 1010	E-TAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client ETA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 4-24-20 Opened on 4-25-20

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 M55 ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 10.9 °C Corrected Cooler Temp. 11.6 °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
   -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 pH Strip Lot# **HC902937**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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: _____

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

16.0/16.7

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-522989.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135821-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/18/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S13

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
Preservation Code:											
MW-13 (280-135821-9)	4/22/20	10:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-27 (280-135821-10)	4/22/20	12:15 Mountain		Water			X	X	X	2	Use Collision Cell
MW-21D (280-135821-11)	4/21/20	16:50 Mountain		Water			X	X	X	2	Use Collision Cell
MW-21 280-135821-8										1	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5/1/2020 1345			5-2-20 950	EMC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client LTA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 5-2-20 Opened on 5-2-20

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

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

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

COOLANT: Wet Ice Blue Ice Dry Ice Water ~~None~~

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 16.0 °C Corrected Cooler Temp. 16.7 °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)
   -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 pH Strip Lot# **HC902937**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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: 280-135821-1

Login Number: 135821
List Number: 1
Creator: Bentley, Beau J

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Not present - client dropped off samples.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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: 280-135821-1

Login Number: 135821
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/24/20 08:24 PM

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-135821-1

Login Number: 135821
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/24/20 08:24 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-135821-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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)
280-135821-1	MW-1P	92.7
280-135821-2	MW-09	97.6
280-135821-3	MW-12	92.7
280-135821-4	MW-4	96.6
280-135821-5	MW-28	106
280-135821-6	MW-11	101
280-135821-7	MW-14	102
280-135821-8	MW-21	105
280-135821-9	MW-13	105
280-135821-10	MW-27	100
280-135821-11	MW-21D	99.4
LCS 160-469233/1-A	Lab Control Sample	86.0
LCSD 160-469233/2-A	Lab Control Sample Dup	89.9
MB 160-469233/21-A	Method Blank	87.2

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)
280-135821-1	MW-1P	92.7	84.5
280-135821-2	MW-09	97.6	84.1
280-135821-3	MW-12	92.7	81.9
280-135821-4	MW-4	96.6	85.2
280-135821-5	MW-28	106	84.1
280-135821-6	MW-11	101	84.9
280-135821-7	MW-14	102	84.9
280-135821-8	MW-21	105	82.2
280-135821-9	MW-13	105	81.5
280-135821-10	MW-27	100	84.5
280-135821-11	MW-21D	99.4	83.7
LCS 160-469239/1-A	Lab Control Sample	86.0	79.6
LCSD 160-469239/2-A	Lab Control Sample Dup	89.9	80.4
MB 160-469239/21-A	Method Blank	87.2	84.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-135826-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
5/26/2020 12:16:36 PM

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

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
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.
¤	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)

Job ID: 280-135826-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-135826-1

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 4/22/2020 4:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.5º C, 0.9º C, 2.6º C and 5.2º C.

Receipt Exceptions
No custody seal was present on the cooler. It is noted that the client dropped off this sample, so custody seals were not required.
MW-07 (280-135826-1)

TOTAL RECOVERABLE METALS
Sample MW-07 (280-135826-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/29/2020 and analyzed on 05/01/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Sample MW-07 (280-135826-1) was analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/29/2020 and analyzed on 04/30/2020.

Lithium was detected in method blank MB 240-432562/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. 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.

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

TOTAL MERCURY
Sample MW-07 (280-135826-1) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 04/29/2020 and analyzed on 04/30/2020.

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

TOTAL DISSOLVED SOLIDS
Sample MW-07 (280-135826-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on

Job ID: 280-135826-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

04/24/2020.

Total Dissolved Solids (TDS) was detected in method blank MB 280-492759/2 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.

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

TOTAL SUSPENDED SOLIDS
Sample MW-07 (280-135826-1) was 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)
Sample MW-07 (280-135826-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. 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.

ANIONS (28 DAYS)
Sample MW-07 (280-135826-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/15/2020.

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

RADIUM-226 (GFPC)
Sample MW-07 (280-135826-1) was analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 04/30/2020 and analyzed on 05/22/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-07 (280-135826-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:
Inferred from Reported to Analyte
Bi-214 Ra-226
MW-07 (280-135826-1), (LCS 160-469233/1-A), (LCSD 160-469233/2-A) and (MB 160-469233/21-A)

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

RADIUM-228
Sample MW-07 (280-135826-1) was analyzed for Radium-228 in accordance with 9320. The samples were prepared on 04/30/2020 and analyzed on 05/13/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-07 (280-135826-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Job ID: 280-135826-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Ac-228	Ra-228

MW-07 (280-135826-1), (LCS 160-469233/1-A), (LCSD 160-469233/2-A) and (MB 160-469233/21-A)

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

RADIUM-226/RADIUM-228 (GFPC)

Sample MW-07 (280-135826-1) was analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/22/2020.

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

Detection Summary

Client: HDR Inc
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-07
Lab Sample ID: 280-135826-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.022		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	56		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00027	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.00035	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0025		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0035	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00071	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0049	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.038	B	0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	48		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.41	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	100		5.0	1.0	mg/L	1		9056A	Total/NA
Total Suspended Solids	7.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	570	B	10	4.7	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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"
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-135826-1	MW-07	Water	04/22/20 15:05	04/22/20 16:35	

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

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.26**		0.10	0.023	mg/L		04/29/20 15:00	05/01/20 14:35	1

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

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/29/20 15:00	04/30/20 11:32	1
Arsenic	ND		0.0050	0.00075	mg/L		04/29/20 15:00	04/30/20 11:32	1
Barium	**0.022**		0.0050	0.0022	mg/L		04/29/20 15:00	04/30/20 11:32	1
Beryllium	ND		0.0010	0.00031	mg/L		04/29/20 15:00	04/30/20 11:32	1
Calcium	**56**		1.0	0.58	mg/L		04/29/20 15:00	04/30/20 11:32	1
Cadmium	**0.00027**	**J**	0.0010	0.00020	mg/L		04/29/20 15:00	04/30/20 11:32	1
Cobalt	**0.00035**	**J**	0.0010	0.00019	mg/L		04/29/20 15:00	04/30/20 11:32	1
Chromium	**0.0025**		0.0020	0.00098	mg/L		04/29/20 15:00	04/30/20 11:32	1
Molybdenum	**0.0035**	**J**	0.010	0.0011	mg/L		04/29/20 15:00	04/30/20 11:32	1
Lead	**0.00071**	**J**	0.0010	0.00045	mg/L		04/29/20 15:00	04/30/20 11:32	1
Selenium	**0.0049**	**J**	0.0050	0.00089	mg/L		04/29/20 15:00	04/30/20 11:32	1
Thallium	ND		0.0010	0.00020	mg/L		04/29/20 15:00	04/30/20 11:32	1
Lithium	**0.038**	**B**	0.0080	0.0017	mg/L		04/29/20 15:00	04/30/20 11:32	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/29/20 12:00	04/30/20 16:59	1

General Chemistry

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35
Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.9**	**HF**	0.1	0.1	SU			04/27/20 21:07	1
Temperature	**23.2**	**HF**	1.0	1.0	Degrees C			04/27/20 21:07	1
Chloride	**48**		3.0	1.0	mg/L			05/15/20 03:11	1
Fluoride	**0.41**	**J**	0.50	0.17	mg/L			05/15/20 03:11	1
Sulfate	**100**		5.0	1.0	mg/L			05/15/20 03:11	1
Total Suspended Solids	**7.2**		4.0	1.1	mg/L			04/27/20 10:37	1
Total Dissolved Solids (TDS)	**570**	**B**	10	4.7	mg/L			04/24/20 16:06	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.195**		0.0962	0.0978	1.00	0.119	pCi/L	04/30/20 09:40	05/22/20 06:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*04/30/20 09:40*	*05/22/20 06:38*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.163	U	0.289	0.289	1.00	0.487	pCi/L	04/30/20 11:18	05/13/20 11:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:45*	*1*
Y Carrier	*84.9*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:45*	*1*

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

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135826-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.358	U	0.305	0.305	5.00	0.487	pCi/L		05/22/20 09:31	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-432562/1-A
Matrix: Water
Analysis Batch: 432902

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		04/29/20 15:00	05/01/20 14:26	1

Lab Sample ID: LCS 240-432562/2-A
Matrix: Water
Analysis Batch: 432902

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.04		mg/L		104	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-432562/1-A
Matrix: Water
Analysis Batch: 432781

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/29/20 15:00	04/30/20 11:22	1
Arsenic	ND		0.0050	0.00075	mg/L		04/29/20 15:00	04/30/20 11:22	1
Barium	ND		0.0050	0.0022	mg/L		04/29/20 15:00	04/30/20 11:22	1
Beryllium	ND		0.0010	0.00031	mg/L		04/29/20 15:00	04/30/20 11:22	1
Calcium	ND		1.0	0.58	mg/L		04/29/20 15:00	04/30/20 11:22	1
Cadmium	ND		0.0010	0.00020	mg/L		04/29/20 15:00	04/30/20 11:22	1
Cobalt	ND		0.0010	0.00019	mg/L		04/29/20 15:00	04/30/20 11:22	1
Chromium	ND		0.0020	0.00098	mg/L		04/29/20 15:00	04/30/20 11:22	1
Molybdenum	ND		0.010	0.0011	mg/L		04/29/20 15:00	04/30/20 11:22	1
Lead	ND		0.0010	0.00045	mg/L		04/29/20 15:00	04/30/20 11:22	1
Selenium	ND		0.0050	0.00089	mg/L		04/29/20 15:00	04/30/20 11:22	1
Thallium	ND		0.0010	0.00020	mg/L		04/29/20 15:00	04/30/20 11:22	1
Lithium	0.00227	J	0.0080	0.0017	mg/L		04/29/20 15:00	04/30/20 11:22	1

Lab Sample ID: LCS 240-432562/3-A
Matrix: Water
Analysis Batch: 432781

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.106		mg/L		106	80 - 120
Arsenic	1.00	1.00		mg/L		100	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	0.500	0.527		mg/L		105	80 - 120
Calcium	25.0	25.2		mg/L		101	80 - 120
Cadmium	0.500	0.500		mg/L		100	80 - 120
Cobalt	0.500	0.525		mg/L		105	80 - 120
Chromium	0.500	0.528		mg/L		106	80 - 120
Molybdenum	0.500	0.525		mg/L		105	80 - 120
Lead	0.500	0.529		mg/L		106	80 - 120
Selenium	1.00	0.966		mg/L		97	80 - 120
Thallium	1.00	0.987		mg/L		99	80 - 120
Lithium	0.500	0.506		mg/L		101	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-432563/1-A
Matrix: Water
Analysis Batch: 432892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432563

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/29/20 12:00	04/30/20 16:39	1

Lab Sample ID: LCS 240-432563/2-A
Matrix: Water
Analysis Batch: 432892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.15		ug/L		103	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-493033/30
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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-494833/6
Matrix: Water
Analysis Batch: 494833

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			05/14/20 11:32	1
Fluoride	ND		0.50	0.17	mg/L			05/14/20 11:32	1
Sulfate	ND		5.0	1.0	mg/L			05/14/20 11:32	1

Lab Sample ID: LCS 280-494833/4
Matrix: Water
Analysis Batch: 494833

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.0		mg/L		97	90 - 110
Fluoride	5.00	5.17		mg/L		103	90 - 110
Sulfate	100	95.0		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-494833/5
Matrix: Water
Analysis Batch: 494833

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	96.3		mg/L		96	90 - 110	1	10
Fluoride	5.00	5.13		mg/L		103	90 - 110	1	10
Sulfate	100	94.3		mg/L		94	90 - 110	1	10

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

Lab Sample ID: MRL 280-494833/3
Matrix: Water
Analysis Batch: 494833

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
Fluoride	0.500	0.519		mg/L		104	50 - 150
Sulfate	5.00	4.24	J	mg/L		85	50 - 150

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

Lab Sample ID: MB 280-492888/1
Matrix: Water
Analysis Batch: 492888

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 10:37	1

Lab Sample ID: LCS 280-492888/2
Matrix: Water
Analysis Batch: 492888

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

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-492759/2
Matrix: Water
Analysis Batch: 492759

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)	6.00	J	10	4.7	mg/L			04/24/20 16:06	1

Lab Sample ID: LCS 280-492759/1
Matrix: Water
Analysis Batch: 492759

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	499		mg/L		100	93 - 110

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469233/21-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469233

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01846	U	0.0369	0.0369	1.00	0.0953	pCi/L	04/30/20 09:40	05/22/20 06:38	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/30/20 09:40*	*05/22/20 06:38*	*1*

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

Lab Sample ID: LCS 160-469233/1-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469233

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.45		1.10	1.00	0.120	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*

Lab Sample ID: LCSD 160-469233/2-A
Matrix: Water
Analysis Batch: 471150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469233

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.49		1.10	1.00	0.110	pCi/L	92	75 - 125	0.02	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*89.9*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469239/21-A
Matrix: Water
Analysis Batch: 470297

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469239

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05587	U	0.244	0.244	1.00	0.427	pCi/L	04/30/20 11:18	05/13/20 11:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:46*	*1*
Y Carrier	*84.5*		*40 - 110*	*04/30/20 11:18*	*05/13/20 11:46*	*1*

Lab Sample ID: LCS 160-469239/1-A
Matrix: Water
Analysis Batch: 470272

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469239

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.85	8.531		1.05	1.00	0.460	pCi/L	96	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.0*		*40 - 110*
Y Carrier	*79.6*		*40 - 110*

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

Lab Sample ID: LCSD 160-469239/2-A
Matrix: Water
Analysis Batch: 470272

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469239

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.85	8.040		0.988	1.00	0.427	pCi/L	91	75 - 125	0.24	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*89.9*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Metals

Prep Batch: 432562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total Recoverable	Water	3005A	
MB 240-432562/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-432562/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-432562/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 432563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	7470A	
MB 240-432563/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-432563/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 432781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total Recoverable	Water	6020A	432562
MB 240-432562/1-A	Method Blank	Total Recoverable	Water	6020A	432562
LCS 240-432562/3-A	Lab Control Sample	Total Recoverable	Water	6020A	432562

Analysis Batch: 432892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	7470A	432563
MB 240-432563/1-A	Method Blank	Total/NA	Water	7470A	432563
LCS 240-432563/2-A	Lab Control Sample	Total/NA	Water	7470A	432563

Analysis Batch: 432902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total Recoverable	Water	6010C	432562
MB 240-432562/1-A	Method Blank	Total Recoverable	Water	6010C	432562
LCS 240-432562/2-A	Lab Control Sample	Total Recoverable	Water	6010C	432562

General Chemistry

Analysis Batch: 492759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	SM2540 C	
MB 280-492759/2	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-492759/1	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 492888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	SM 2540D	
MB 280-492888/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-492888/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 493033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	9040B	
LCS 280-493033/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 494833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 494833 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-494833/6	Method Blank	Total/NA	Water	9056A	
LCS 280-494833/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-494833/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-494833/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 469233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	PrecSep-21	
MB 160-469233/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469233/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469233/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135826-1	MW-07	Total/NA	Water	PrecSep_0	
MB 160-469239/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469239/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469239/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-07
Date Collected: 04/22/20 15:05
Date Received: 04/22/20 16:35

Lab Sample ID: 280-135826-1
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	432562	04/29/20 15:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 14:35	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432562	04/29/20 15:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			432781	04/30/20 11:32	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432563	04/29/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 16:59	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 21:07	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	494833	05/15/20 03:11	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	492888	04/27/20 10:37	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	492759	04/24/20 16:06	JAP	TAL DEN
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	469233	04/30/20 09:40	RJD	TAL SL
Total/NA	Analysis	9315		1			471150	05/22/20 06:38	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	469239	04/30/20 11:18	RJD	TAL SL
Total/NA	Analysis	9320		1			470297	05/13/20 11:45	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471151	05/22/20 09:31	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
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	04-30-21
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	06-30-20
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
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

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

Chain of Custody Record

Denver #280

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Client Information	Sampler: A. Morgan	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-98365-29694.1
Client Contact: Molly Reeves	Phone: 832-418-3307	E-Mail: darlene.bandy@testamericainc.com		Page: Page 1 of 3
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A	9040B, 9056A_28D	2540C_Calcd, 2540D	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW- 07	4-22-20	1505	G	Water	N	N	X	X	X	X	7	
MW-				Water								
MW-				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

Contact Molly Reeves with questions at 734-263-7138

280-135826 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4-22-20 / 1635	HDR		4/22/20 1635	GTA/Der
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		2.3, 4.9, 0.6, 0.2 IR9 +0.3 BB 4/22/20

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521912.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135826-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/21/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-07 (280-135826-1)	4/22/20	15:05 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/23/2020 1445		FED EX		
2	FED EX			[signature]	4/24/2020 0828	ETA STL
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-521911.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135826-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/18/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-07 (280-135826-1)	4/22/20	15:05 Mountain		Water			X	X	X	2	Use Collision Cell

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/23/2020 1405			4-24-20 1010	ETAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client ETA Denver Site Name _____ Cooler unpacked by: MMF

Cooler Received on 4-24-20 Opened on 4-25-20

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

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

TestAmerica Cooler # 14 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. 10.9 °C Corrected Cooler Temp. 11.6 °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~~
-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 pH Strip Lot# HC902937
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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: _____

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-135826-1

Login Number: 135826
List Number: 1
Creator: Bentley, Beau J

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Not present - client dropped off samples.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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: 280-135826-1

Login Number: 135826
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/24/20 08:24 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-135826-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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)
280-135826-1	MW-07	91.8
LCS 160-469233/1-A	Lab Control Sample	86.0
LCSD 160-469233/2-A	Lab Control Sample Dup	89.9
MB 160-469233/21-A	Method Blank	87.2

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)
280-135826-1	MW-07	91.8	84.9
LCS 160-469239/1-A	Lab Control Sample	86.0	79.6
LCSD 160-469239/2-A	Lab Control Sample Dup	89.9	80.4
MB 160-469239/21-A	Method Blank	87.2	84.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

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ANALYTICAL REPORT

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

Laboratory Job ID: 280-135925-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
5/27/2020 11:10:33 PM

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

LINKS

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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
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
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
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)

Job ID: 280-135925-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-135925-1

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 4/24/2020 2:26 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 2.1° C.

TOTAL RECOVERABLE METALS
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/30/2020 and analyzed on 05/01/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/30/2020 and analyzed on 05/01/2020.

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

TOTAL MERCURY
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/30/2020.

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

TOTAL DISSOLVED SOLIDS
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/28/2020.

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

Job ID: 280-135925-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

TOTAL SUSPENDED SOLIDS
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/29/2020.

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

CORROSIVITY (PH)
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. 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.

ANIONS (28 DAYS)
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/20/2020.

Samples MW-03 (280-135925-1)[20X], MW-01 (280-135925-2)[5X], MW-15 (280-135925-3)[10X], MW-08 (280-135925-4)[20X], MW-08 (280-135925-4)[5X], MW-26 (280-135925-5)[20X], MW-26 (280-135925-5)[5X] and MW-16 (280-135925-6)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Chloride failed the recovery criteria high for the MS of sample MW-16 (280-135925-6) in batch 280-495372. Sulfate failed the recovery criteria high for the MS/MSD of sample MW-16 (280-135925-6) in batch 280-495372. Refer to the QC report for details. The MS/MSD was performed on the 1x dilution of sample MW-16 (280-135925-6), which was over the calibration range for Sulfate; however, the Sulfate result for this sample is reported from the 5x dilution. No MS/MSD was performed on the 5x dilution. The acceptable LCS data indicate that the analytical system was operating within control.

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

RADIUM-226 (GFPC)
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/05/2020 and analyzed on 05/27/2020.

The following samples were prepared at a reduced aliquot due to a cloudy appearance: MW-08 (280-135925-4) and MW-16 (280-135925-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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.
MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5), MW-16 (280-135925-6), (LCS 160-469552/1-A), (LCSD 160-469552/2-A) and (MB 160-469552/23-A)

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

RADIUM-228
Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and

Job ID: 280-135925-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

MW-16 (280-135925-6) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/05/2020 and analyzed on 05/20/2020.

The following samples were prepared at a reduced aliquot due to a cloudy appearance: MW-08 (280-135925-4) and MW-16 (280-135925-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Radium-228 was detected in method blank MB 160-469552/23-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Refer to the QC report for details. The method blank (MB) detected Radium-228 above the MDC but below the detection goal. The data have been reported.

Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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.
MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5), MW-16 (280-135925-6), (LCS 160-469552/1-A), (LCSD 160-469552/2-A) and (MB 160-469552/23-A)

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-03 (280-135925-1), MW-01 (280-135925-2), MW-15 (280-135925-3), MW-08 (280-135925-4), MW-26 (280-135925-5) and MW-16 (280-135925-6) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/27/2020.

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

Detection Summary

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-03 — Lab Sample ID: 280-135925-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.5		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.014		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	530		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00057	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0031		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0013	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.00089	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.080		0.0080	0.0017	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	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	40		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	2300		100	21	mg/L	20		9056A	Total/NA
Total Suspended Solids	46		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	4000		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-01 — Lab Sample ID: 280-135925-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.43		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.036		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	83		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00026	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0010	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.015		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.031		0.0080	0.0017	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	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	62		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.25	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	280		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	960		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 280-135925-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.47		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0011	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-15 (Continued) — Lab Sample ID: 280-135925-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.021		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	180		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00027	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.017		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0053	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.15		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.046		0.0080	0.0017	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	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	82		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1000		50	10	mg/L	10		9056A	Total/NA
Total Suspended Solids	9.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	2200		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-08 — Lab Sample ID: 280-135925-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.86		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.015		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	460		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0012		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0012	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	0.0048	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.13		0.0080	0.0017	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	22.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	3.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2700		100	21	mg/L	20		9056A	Total/NA
Total Suspended Solids	23		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	4400		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-26 — Lab Sample ID: 280-135925-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.68		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.0022		0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0022	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Client Sample ID: MW-26 (Continued) — Lab Sample ID: 280-135925-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.068		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	48		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00081	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0080		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.036		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0013		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.052		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	190		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.17	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2000		100	21	mg/L	20		9056A	Total/NA
Total Suspended Solids	9.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	3300		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 280-135925-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.54		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.016		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	490		1.0	0.58	mg/L	1		6020A	Total Recoverable
Selenium	0.0050		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.078		0.0080	0.0017	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	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	58	F1	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	180		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	240		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	740		20	9.4	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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"
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-135925-1	MW-03	Water	04/23/20 10:35	04/24/20 14:26	
280-135925-2	MW-01	Water	04/23/20 11:35	04/24/20 14:26	
280-135925-3	MW-15	Water	04/23/20 13:40	04/24/20 14:26	
280-135925-4	MW-08	Water	04/23/20 14:50	04/24/20 14:26	
280-135925-5	MW-26	Water	04/23/20 16:10	04/24/20 14:26	
280-135925-6	MW-16	Water	04/24/20 12:25	04/24/20 14:26	

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

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.5**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:26	1

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.43**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:31	1

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.47**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:35	1

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.86**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:39	1

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.68**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:44	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.54**		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 19:49	1

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

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 12:57	1
Arsenic	ND		0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 12:57	1
Barium	**0.014**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 12:57	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 12:57	1
Calcium	**530**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 12:57	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:57	1
Cobalt	**0.00057**	**J**	0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 12:57	1
Chromium	**0.0031**		0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 12:57	1
Molybdenum	**0.0013**	**J**	0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 12:57	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 12:57	1
Selenium	**0.00089**	**J**	0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 12:57	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:57	1
Lithium	**0.080**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 12:57	1

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

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 12:59	1
Arsenic	ND		0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 12:59	1
Barium	**0.036**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 12:59	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 12:59	1
Calcium	**83**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 12:59	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:59	1
Cobalt	**0.00026**	**J**	0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 12:59	1
Chromium	**0.0010**	**J**	0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 12:59	1
Molybdenum	**0.015**		0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 12:59	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 12:59	1
Selenium	ND		0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 12:59	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:59	1
Lithium	**0.031**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 12:59	1

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 13:02	1
Arsenic	**0.0011**	**J**	0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 13:02	1
Barium	**0.021**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 13:02	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 13:02	1
Calcium	**180**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 13:02	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:02	1
Cobalt	**0.00027**	**J**	0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 13:02	1
Chromium	**0.017**		0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 13:02	1
Molybdenum	**0.0053**	**J**	0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 13:02	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 13:02	1
Selenium	**0.15**		0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 13:02	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:02	1
Lithium	**0.046**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 13:02	1

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 13:04	1
Arsenic	ND		0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 13:04	1
Barium	**0.015**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 13:04	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 13:04	1
Calcium	**460**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 13:04	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:04	1
Cobalt	**0.0012**		0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 13:04	1
Chromium	**0.0012**	**J**	0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 13:04	1
Molybdenum	ND		0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 13:04	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 13:04	1
Selenium	**0.0048**	**J**	0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 13:04	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:04	1
Lithium	**0.13**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 13:04	1

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

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0022**		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 13:07	1
Arsenic	**0.0022**	**J**	0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 13:07	1
Barium	**0.068**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 13:07	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 13:07	1
Calcium	**48**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 13:07	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:07	1
Cobalt	**0.00081**	**J**	0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 13:07	1
Chromium	**0.0080**		0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 13:07	1
Molybdenum	**0.036**		0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 13:07	1
Lead	**0.0013**		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 13:07	1
Selenium	ND		0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 13:07	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:07	1
Lithium	**0.052**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 13:07	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 13:09	1
Arsenic	ND		0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 13:09	1
Barium	**0.016**		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 13:09	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 13:09	1
Calcium	**490**		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 13:09	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:09	1
Cobalt	ND		0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 13:09	1
Chromium	ND		0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 13:09	1
Molybdenum	ND		0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 13:09	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 13:09	1
Selenium	**0.0050**		0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 13:09	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 13:09	1
Lithium	**0.078**		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 13:09	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:28	1

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:30	1

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:32	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:34	1

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:36	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:38	1

General Chemistry

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
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			04/27/20 19:58	1
Temperature	**22.4**	**HF**	1.0	1.0	Degrees C			04/27/20 19:58	1
Chloride	**40**		3.0	1.0	mg/L			05/20/20 01:27	1
Fluoride	ND		0.50	0.17	mg/L			05/20/20 01:27	1
Sulfate	**2300**		100	21	mg/L			05/20/20 18:09	20
Total Suspended Solids	**46**		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	**4000**		40	19	mg/L			04/28/20 09:02	1

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.7**	**HF**	0.1	0.1	SU			04/27/20 20:05	1
Temperature	**22.3**	**HF**	1.0	1.0	Degrees C			04/27/20 20:05	1
Chloride	**62**		3.0	1.0	mg/L			05/20/20 01:59	1
Fluoride	**0.25**	**J**	0.50	0.17	mg/L			05/20/20 01:59	1
Sulfate	**280**		25	5.2	mg/L			05/20/20 02:16	5
Total Suspended Solids	**10**		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	**960**		20	9.4	mg/L			04/28/20 09:02	1

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
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 20:11	1
Temperature	**22.5**	**HF**	1.0	1.0	Degrees C			04/27/20 20:11	1
Chloride	**82**		3.0	1.0	mg/L			05/20/20 03:05	1
Fluoride	**0.45**	**J**	0.50	0.17	mg/L			05/20/20 03:05	1
Sulfate	**1000**		50	10	mg/L			05/20/20 18:27	10
Total Suspended Solids	**9.2**		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	**2200**		20	9.4	mg/L			04/28/20 09:02	1

General Chemistry

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
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			04/27/20 20:18	1
Temperature	22.7	HF	1.0	1.0	Degrees C			04/27/20 20:18	1
Chloride	260		15	5.1	mg/L			05/20/20 03:54	5
Fluoride	3.1		0.50	0.17	mg/L			05/20/20 03:38	1
Sulfate	2700		100	21	mg/L			05/20/20 18:44	20
Total Suspended Solids	23		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	4400		40	19	mg/L			04/28/20 09:02	1

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			04/27/20 20:25	1
Temperature	22.9	HF	1.0	1.0	Degrees C			04/27/20 20:25	1
Chloride	190		15	5.1	mg/L			05/20/20 04:27	5
Fluoride	0.17	J	0.50	0.17	mg/L			05/20/20 04:11	1
Sulfate	2000		100	21	mg/L			05/20/20 19:01	20
Total Suspended Solids	9.6		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	3300		40	19	mg/L			04/28/20 09:02	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/27/20 20:29	1
Temperature	22.6	HF	1.0	1.0	Degrees C			04/27/20 20:29	1
Chloride	58	F1	3.0	1.0	mg/L			05/20/20 04:43	1
Fluoride	1.0		0.50	0.17	mg/L			05/20/20 04:43	1
Sulfate	180		25	5.2	mg/L			05/20/20 19:19	5
Total Suspended Solids	240		4.0	1.1	mg/L			04/29/20 08:35	1
Total Dissolved Solids (TDS)	740		20	9.4	mg/L			04/28/20 09:02	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.394		0.113	0.118	1.00	0.0834	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.1*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0457	U	0.0576	0.0577	1.00	0.0945	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*79.5*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.0879**		0.0628	0.0632	1.00	0.0792	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.473**		0.149	0.155	1.00	0.115	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.279**		0.103	0.106	1.00	0.0890	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.1*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.283**		0.125	0.128	1.00	0.124	pCi/L	05/05/20 06:10	05/27/20 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.4*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:13*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.703		0.256	0.264	1.00	0.350	pCi/L	05/05/20 06:49	05/20/20 08:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.1*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:09*	*1*
Y Carrier	*87.9*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:09*	*1*

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.521		0.305	0.308	1.00	0.463	pCi/L	05/05/20 06:49	05/20/20 08:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*79.5*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:10*	*1*
Y Carrier	*84.1*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:10*	*1*

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.223	U	0.226	0.227	1.00	0.367	pCi/L	05/05/20 06:49	05/20/20 08:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.0*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:10*	*1*
Y Carrier	*84.9*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:10*	*1*

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.03		0.367	0.379	1.00	0.499	pCi/L	05/05/20 06:49	05/20/20 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:14*	*1*
Y Carrier	*91.6*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:14*	*1*

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.724		0.297	0.305	1.00	0.428	pCi/L	05/05/20 06:49	05/20/20 08:05	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.1		40 - 110	05/05/20 06:49	05/20/20 08:05	1
Y Carrier	92.3		40 - 110	05/05/20 06:49	05/20/20 08:05	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.405	U	0.411	0.412	1.00	0.670	pCi/L	05/05/20 06:49	05/20/20 08:05	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.4		40 - 110	05/05/20 06:49	05/20/20 08:05	1
Y Carrier	87.5		40 - 110	05/05/20 06:49	05/20/20 08:05	1

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

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.10**		0.280	0.289	5.00	0.350	pCi/L		05/27/20 12:45	1

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.566**		0.310	0.313	5.00	0.463	pCi/L		05/27/20 12:45	1

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.311	U	0.235	0.236	5.00	0.367	pCi/L		05/27/20 12:45	1

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26
Lab Sample ID: 280-135925-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.51**		0.396	0.409	5.00	0.499	pCi/L		05/27/20 12:45	1

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Client Sample ID: MW-26
Date Collected: 04/23/20 16:10
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.00		0.314	0.323	5.00	0.428	pCi/L		05/27/20 12:45	1

Client Sample ID: MW-16
Date Collected: 04/24/20 12:25
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.688		0.430	0.431	5.00	0.670	pCi/L		05/27/20 12:45	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-432711/1-A
Matrix: Water
Analysis Batch: 432902

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432711

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		04/30/20 14:00	05/01/20 18:14	1

Lab Sample ID: LCS 240-432711/2-A
Matrix: Water
Analysis Batch: 432902

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.01		mg/L		101	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-432711/1-A
Matrix: Water
Analysis Batch: 433053

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 432711

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		04/30/20 14:00	05/01/20 12:21	1
Arsenic	ND		0.0050	0.00075	mg/L		04/30/20 14:00	05/01/20 12:21	1
Barium	ND		0.0050	0.0022	mg/L		04/30/20 14:00	05/01/20 12:21	1
Beryllium	ND		0.0010	0.00031	mg/L		04/30/20 14:00	05/01/20 12:21	1
Calcium	ND		1.0	0.58	mg/L		04/30/20 14:00	05/01/20 12:21	1
Cadmium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:21	1
Cobalt	ND		0.0010	0.00019	mg/L		04/30/20 14:00	05/01/20 12:21	1
Chromium	ND		0.0020	0.00098	mg/L		04/30/20 14:00	05/01/20 12:21	1
Molybdenum	ND		0.010	0.0011	mg/L		04/30/20 14:00	05/01/20 12:21	1
Lead	ND		0.0010	0.00045	mg/L		04/30/20 14:00	05/01/20 12:21	1
Selenium	ND		0.0050	0.00089	mg/L		04/30/20 14:00	05/01/20 12:21	1
Thallium	ND		0.0010	0.00020	mg/L		04/30/20 14:00	05/01/20 12:21	1
Lithium	ND		0.0080	0.0017	mg/L		04/30/20 14:00	05/01/20 12:21	1

Lab Sample ID: LCS 240-432711/3-A
Matrix: Water
Analysis Batch: 433053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 432711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.103		mg/L		103	80 - 120
Arsenic	1.00	0.965		mg/L		96	80 - 120
Barium	1.00	1.00		mg/L		100	80 - 120
Beryllium	0.500	0.485		mg/L		97	80 - 120
Calcium	25.0	24.9		mg/L		99	80 - 120
Cadmium	0.500	0.480		mg/L		96	80 - 120
Cobalt	0.500	0.507		mg/L		101	80 - 120
Chromium	0.500	0.503		mg/L		101	80 - 120
Molybdenum	0.500	0.505		mg/L		101	80 - 120
Lead	0.500	0.501		mg/L		100	80 - 120
Selenium	1.00	0.918		mg/L		92	80 - 120
Thallium	1.00	0.928		mg/L		93	80 - 120
Lithium	0.500	0.461		mg/L		92	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-432713/1-A
Matrix: Water
Analysis Batch: 432892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		04/30/20 12:00	04/30/20 17:01	1

Lab Sample ID: LCS 240-432713/2-A
Matrix: Water
Analysis Batch: 432892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.93		ug/L		99	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-493033/30
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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-495372/13
Matrix: Water
Analysis Batch: 495372

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			05/19/20 13:58	1
Fluoride	ND		0.50	0.17	mg/L			05/19/20 13:58	1
Sulfate	ND		5.0	1.0	mg/L			05/19/20 13:58	1

Lab Sample ID: LCS 280-495372/11
Matrix: Water
Analysis Batch: 495372

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.1		mg/L		97	90 - 110
Fluoride	5.00	4.77		mg/L		95	90 - 110
Sulfate	100	97.0		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-495372/12
Matrix: Water
Analysis Batch: 495372

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	97.1		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.79		mg/L		96	90 - 110	0	10
Sulfate	100	96.5		mg/L		97	90 - 110	0	10

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

Lab Sample ID: MRL 280-495372/10
Matrix: Water
Analysis Batch: 495372

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	4.06		mg/L		81	50 - 150		
Fluoride			0.500	0.485	J	mg/L		97	50 - 150		
Sulfate			5.00	4.32	J	mg/L		86	50 - 150		

Lab Sample ID: 280-135925-6 MS
Matrix: Water
Analysis Batch: 495372

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	58	F1	50.0	118	F1	mg/L		121	80 - 120		
Fluoride	1.0		5.00	5.88		mg/L		98	80 - 120		
Sulfate	200	E	50.0	271	E 4	mg/L		132	80 - 120		

Lab Sample ID: 280-135925-6 MSD
Matrix: Water
Analysis Batch: 495372

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	58	F1	50.0	118		mg/L		120	80 - 120	0	20
Fluoride	1.0		5.00	5.88		mg/L		98	80 - 120	0	20
Sulfate	200	E	50.0	270	E 4	mg/L		130	80 - 120	0	20

Lab Sample ID: 280-135925-6 DU
Matrix: Water
Analysis Batch: 495372

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	58	F1		57.7		mg/L				0.2	15
Fluoride	1.0			0.990		mg/L				0.6	15
Sulfate	200	E		204	E	mg/L				0.2	15

Lab Sample ID: MB 280-495539/6
Matrix: Water
Analysis Batch: 495539

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			05/20/20 11:05	1

Lab Sample ID: LCS 280-495539/4
Matrix: Water
Analysis Batch: 495539

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			100	99.7		mg/L		100	90 - 110		

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

Lab Sample ID: LCSD 280-495539/5
Matrix: Water
Analysis Batch: 495539

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100	99.5		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-495539/3
Matrix: Water
Analysis Batch: 495539

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.17	J	mg/L		83	50 - 150

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

Lab Sample ID: MB 280-493120/1
Matrix: Water
Analysis Batch: 493120

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			04/29/20 08:35	1

Lab Sample ID: LCS 280-493120/2
Matrix: Water
Analysis Batch: 493120

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	84.4		mg/L		84	79 - 114

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-492993/1
Matrix: Water
Analysis Batch: 492993

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			04/28/20 09:02	1

Lab Sample ID: LCS 280-492993/2
Matrix: Water
Analysis Batch: 492993

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	511		mg/L		102	93 - 110

Lab Sample ID: LCSD 280-492993/3
Matrix: Water
Analysis Batch: 492993

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	483		mg/L		97	93 - 110	6	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469549/23-A
Matrix: Water
Analysis Batch: 471298

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469549

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.001473	U	0.0437	0.0437	1.00	0.0948	pCi/L	05/05/20 06:10	05/27/20 10:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*05/05/20 06:10*	*05/27/20 10:14*	*1*

Lab Sample ID: LCS 160-469549/1-A
Matrix: Water
Analysis Batch: 471298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469549

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.23		1.09	1.00	0.106	pCi/L	90	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.2*		*40 - 110*

Lab Sample ID: LCSD 160-469549/2-A
Matrix: Water
Analysis Batch: 471298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469549

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.51		1.13	1.00	0.116	pCi/L	93	75 - 125	0.12	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*77.7*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469552/23-A
Matrix: Water
Analysis Batch: 470959

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469552

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5571		0.296	0.300	1.00	0.446	pCi/L	05/05/20 06:49	05/20/20 08:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:06*	*1*
Y Carrier	*80.7*		*40 - 110*	*05/05/20 06:49*	*05/20/20 08:06*	*1*

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

Lab Sample ID: LCS 160-469552/1-A
Matrix: Water
Analysis Batch: 470958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469552

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.83	8.090		0.986	1.00	0.426	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.2*		*40 - 110*
Y Carrier	*85.2*		*40 - 110*

Lab Sample ID: LCSD 160-469552/2-A
Matrix: Water
Analysis Batch: 470958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469552

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.83	8.332		1.03	1.00	0.446	pCi/L	94	75 - 125	0.12	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*77.7*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Metals

Prep Batch: 432711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total Recoverable	Water	3005A	
280-135925-2	MW-01	Total Recoverable	Water	3005A	
280-135925-3	MW-15	Total Recoverable	Water	3005A	
280-135925-4	MW-08	Total Recoverable	Water	3005A	
280-135925-5	MW-26	Total Recoverable	Water	3005A	
280-135925-6	MW-16	Total Recoverable	Water	3005A	
MB 240-432711/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-432711/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-432711/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 432713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	7470A	
280-135925-2	MW-01	Total/NA	Water	7470A	
280-135925-3	MW-15	Total/NA	Water	7470A	
280-135925-4	MW-08	Total/NA	Water	7470A	
280-135925-5	MW-26	Total/NA	Water	7470A	
280-135925-6	MW-16	Total/NA	Water	7470A	
MB 240-432713/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-432713/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 432892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	7470A	432713
280-135925-2	MW-01	Total/NA	Water	7470A	432713
280-135925-3	MW-15	Total/NA	Water	7470A	432713
280-135925-4	MW-08	Total/NA	Water	7470A	432713
280-135925-5	MW-26	Total/NA	Water	7470A	432713
280-135925-6	MW-16	Total/NA	Water	7470A	432713
MB 240-432713/1-A	Method Blank	Total/NA	Water	7470A	432713
LCS 240-432713/2-A	Lab Control Sample	Total/NA	Water	7470A	432713

Analysis Batch: 432902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total Recoverable	Water	6010C	432711
280-135925-2	MW-01	Total Recoverable	Water	6010C	432711
280-135925-3	MW-15	Total Recoverable	Water	6010C	432711
280-135925-4	MW-08	Total Recoverable	Water	6010C	432711
280-135925-5	MW-26	Total Recoverable	Water	6010C	432711
280-135925-6	MW-16	Total Recoverable	Water	6010C	432711
MB 240-432711/1-A	Method Blank	Total Recoverable	Water	6010C	432711
LCS 240-432711/2-A	Lab Control Sample	Total Recoverable	Water	6010C	432711

Analysis Batch: 433053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total Recoverable	Water	6020A	432711
280-135925-2	MW-01	Total Recoverable	Water	6020A	432711
280-135925-3	MW-15	Total Recoverable	Water	6020A	432711
280-135925-4	MW-08	Total Recoverable	Water	6020A	432711
280-135925-5	MW-26	Total Recoverable	Water	6020A	432711
280-135925-6	MW-16	Total Recoverable	Water	6020A	432711

Metals (Continued)

Analysis Batch: 433053 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-432711/1-A	Method Blank	Total Recoverable	Water	6020A	432711
LCS 240-432711/3-A	Lab Control Sample	Total Recoverable	Water	6020A	432711

General Chemistry

Analysis Batch: 492993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	SM2540 C	
280-135925-2	MW-01	Total/NA	Water	SM2540 C	
280-135925-3	MW-15	Total/NA	Water	SM2540 C	
280-135925-4	MW-08	Total/NA	Water	SM2540 C	
280-135925-5	MW-26	Total/NA	Water	SM2540 C	
280-135925-6	MW-16	Total/NA	Water	SM2540 C	
MB 280-492993/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-492993/2	Lab Control Sample	Total/NA	Water	SM2540 C	
LCSD 280-492993/3	Lab Control Sample Dup	Total/NA	Water	SM2540 C	

Analysis Batch: 493033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	9040B	
280-135925-2	MW-01	Total/NA	Water	9040B	
280-135925-3	MW-15	Total/NA	Water	9040B	
280-135925-4	MW-08	Total/NA	Water	9040B	
280-135925-5	MW-26	Total/NA	Water	9040B	
280-135925-6	MW-16	Total/NA	Water	9040B	
LCS 280-493033/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 493120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	SM 2540D	
280-135925-2	MW-01	Total/NA	Water	SM 2540D	
280-135925-3	MW-15	Total/NA	Water	SM 2540D	
280-135925-4	MW-08	Total/NA	Water	SM 2540D	
280-135925-5	MW-26	Total/NA	Water	SM 2540D	
280-135925-6	MW-16	Total/NA	Water	SM 2540D	
MB 280-493120/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-493120/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 495372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	9056A	
280-135925-2	MW-01	Total/NA	Water	9056A	
280-135925-2	MW-01	Total/NA	Water	9056A	
280-135925-3	MW-15	Total/NA	Water	9056A	
280-135925-4	MW-08	Total/NA	Water	9056A	
280-135925-4	MW-08	Total/NA	Water	9056A	
280-135925-5	MW-26	Total/NA	Water	9056A	
280-135925-5	MW-26	Total/NA	Water	9056A	
280-135925-6	MW-16	Total/NA	Water	9056A	
MB 280-495372/13	Method Blank	Total/NA	Water	9056A	
LCS 280-495372/11	Lab Control Sample	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 495372 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-495372/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495372/10	Lab Control Sample	Total/NA	Water	9056A	
280-135925-6 MS	MW-16	Total/NA	Water	9056A	
280-135925-6 MSD	MW-16	Total/NA	Water	9056A	
280-135925-6 DU	MW-16	Total/NA	Water	9056A	

Analysis Batch: 495539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	9056A	
280-135925-3	MW-15	Total/NA	Water	9056A	
280-135925-4	MW-08	Total/NA	Water	9056A	
280-135925-5	MW-26	Total/NA	Water	9056A	
280-135925-6	MW-16	Total/NA	Water	9056A	
MB 280-495539/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495539/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495539/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495539/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 469549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	PrecSep-21	
280-135925-2	MW-01	Total/NA	Water	PrecSep-21	
280-135925-3	MW-15	Total/NA	Water	PrecSep-21	
280-135925-4	MW-08	Total/NA	Water	PrecSep-21	
280-135925-5	MW-26	Total/NA	Water	PrecSep-21	
280-135925-6	MW-16	Total/NA	Water	PrecSep-21	
MB 160-469549/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469549/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469549/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135925-1	MW-03	Total/NA	Water	PrecSep_0	
280-135925-2	MW-01	Total/NA	Water	PrecSep_0	
280-135925-3	MW-15	Total/NA	Water	PrecSep_0	
280-135925-4	MW-08	Total/NA	Water	PrecSep_0	
280-135925-5	MW-26	Total/NA	Water	PrecSep_0	
280-135925-6	MW-16	Total/NA	Water	PrecSep_0	
MB 160-469552/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469552/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469552/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-03
Date Collected: 04/23/20 10:35
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-1
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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:26	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 12:57	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:28	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 19:58	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495539	05/20/20 18:09	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 01:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.90 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.90 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470958	05/20/20 08:09	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	SMP	TAL SL

Client Sample ID: MW-01
Date Collected: 04/23/20 11:35
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-2
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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:31	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 12:59	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:30	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 20:05	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 01:59	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495372	05/20/20 02:16	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470958	05/20/20 08:10	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	SMP	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-15
Date Collected: 04/23/20 13:40
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-3
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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:35	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 13:02	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:32	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 20:11	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495539	05/20/20 18:27	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 03:05	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.43 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.43 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470958	05/20/20 08:10	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	SMP	TAL SL

Client Sample ID: MW-08
Date Collected: 04/23/20 14:50
Date Received: 04/24/20 14:26

Lab Sample ID: 280-135925-4
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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:39	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 13:04	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:34	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 20:18	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495539	05/20/20 18:44	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 03:38	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495372	05/20/20 03:54	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			750.36 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			750.36 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	SMP	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-26
Lab Sample ID: 280-135925-5
Date Collected: 04/23/20 16:10
Matrix: Water
Date Received: 04/24/20 14:26

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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:44	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 13:07	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:36	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 20:25	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495539	05/20/20 19:01	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 04:11	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495372	05/20/20 04:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.48 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.48 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 08:05	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	SMP	TAL SL

Client Sample ID: MW-16
Lab Sample ID: 280-135925-6
Date Collected: 04/24/20 12:25
Matrix: Water
Date Received: 04/24/20 14:26

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	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			432902	05/01/20 19:49	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	432711	04/30/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433053	05/01/20 13:09	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	432713	04/30/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			432892	04/30/20 17:38	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493033	04/27/20 20:29	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495539	05/20/20 19:19	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495372	05/20/20 04:43	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493120	04/29/20 08:35	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	492993	04/28/20 09:02	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			750.59 mL	1.0 g	469549	05/05/20 06:10	RBR	TAL SL
Total/NA	Analysis	9315		1			471298	05/27/20 10:13	AJD	TAL SL
Total/NA	Prep	PrecSep_0			750.59 mL	1.0 g	469552	05/05/20 06:49	RBR	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 08:05	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471329	05/27/20 12:45	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
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	04-30-21
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	06-30-20
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
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-98365-29694.1
Client Contact: Molly Reeves	Phone:	E-Mail: darlene.bandy@testamericainc.com		Page: Page ~~1 of 2~~ 1 of 1 DTM 4-24-20
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:
City: Englewood	TAT Requested (days):
State, Zip: CO, 80112	
Phone: 734-263-7138(Tel)	PO #: DEN-018
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379
Site: Colorado	SSOW#:

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A	9040B, 9056A_28D	2540C_Calcd, 2540D	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW-03	4/23/20	1035	G	Water	N	N	X	X	X	X	7	For Questions Contact
MW-01	4/23/20	1135	G	Water	N	N	X	X	X	X	7	Molly Reeves at
MW-15	4/23/20	1340	G	Water	N	N	X	X	X	X	7	734-263-7138
MW-08	4/23/20	1450	G	Water	N	N	X	X	X	X	7	
MW-26	4/23/20	1610	G	Water	N	N	X	X	X	X	7	
MW-16	4/24/20	1225	G	Water	N	N	X	X	X	X	7	
				Water								
				Water								
				Water								
				Water								
				Water								

280-135925 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time: 4-24-20 / 1426	Company: HDR	Received by:	Date/Time: 04/24/2020 1426	Company: ETA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 1.0, 1.8 IR# 9 + 0 -3 Transfer RP 4/24/20

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-522463.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135925-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/21/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-03 (280-135925-1)	4/23/20	10:35 Mountain		Water			X	X	X	2	
MW-01 (280-135925-2)	4/23/20	11:35 Mountain		Water			X	X	X	2	
MW-15 (280-135925-3)	4/23/20	13:40 Mountain		Water			X	X	X	2	
MW-08 (280-135925-4)	4/23/20	14:50 Mountain		Water			X	X	X	2	
MW-26 (280-135925-5)	4/23/20	16:10 Mountain		Water			X	X	X	2	
MW-16 (280-135925-6)	4/24/20	12:25 Mountain		Water			X	X	X	2	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/28/2020 1335		FE		
Relinquished by: FE	Date/Time:	Company	Received by: Michael Cunningham	Date/Time: 4/29/2020 09:05	Company ETA SDG
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

5/27/2020

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-522462.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135925-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/19/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X					S13
MW-03 (280-135925-1)	4/23/20	10:35 Mountain		Water			X	X	X	2	Use Collision Cell
MW-01 (280-135925-2)	4/23/20	11:35 Mountain		Water			X	X	X	2	Use Collision Cell
MW-15 (280-135925-3)	4/23/20	13:40 Mountain		Water			X	X	X	2	Use Collision Cell
MW-08 (280-135925-4)	4/23/20	14:50 Mountain		Water			X	X	X	2	Use Collision Cell
MW-26 (280-135925-5)	4/23/20	16:10 Mountain		Water			X	X	X	2	Use Collision Cell
MW-16 (280-135925-6)	4/24/20	12:25 Mountain		Water			X	X	X	2	Use Collision Cell

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

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	4/28/2020 1345			4-29-20 1100	EMAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client EIA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 4-29-20 Opened on 4-29-20

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

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

TestAmerica Cooler # TA ~~Foam Box~~ Client Cooler Box Other _____

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

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF **+0.7** °C) Observed Cooler Temp. 3.0 °C Corrected Cooler Temp. 3.7 °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~~
-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? ● ⬅ 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

pH Strip Lot# **HC902937**

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: 280-135925-1

Login Number: 135925
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-135925-1

Login Number: 135925
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/29/20 08:38 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-135925-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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)
280-135925-1	MW-03	96.1
280-135925-2	MW-01	79.5
280-135925-3	MW-15	88.0
280-135925-4	MW-08	89.8
280-135925-5	MW-26	86.1
280-135925-6	MW-16	83.4
LCS 160-469549/1-A	Lab Control Sample	85.2
LCSD 160-469549/2-A	Lab Control Sample Dup	77.7
MB 160-469549/23-A	Method Blank	98.5

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)
280-135925-1	MW-03	96.1	87.9
280-135925-2	MW-01	79.5	84.1
280-135925-3	MW-15	88.0	84.9
280-135925-4	MW-08	89.8	91.6
280-135925-5	MW-26	86.1	92.3
280-135925-6	MW-16	83.4	87.5
LCS 160-469552/1-A	Lab Control Sample	85.2	85.2
LCSD 160-469552/2-A	Lab Control Sample Dup	77.7	87.5
MB 160-469552/23-A	Method Blank	98.5	80.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

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

Laboratory Job ID: 280-135992-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
6/1/2020 10:31:09 PM

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

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
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
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.
¤	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)

Job ID: 280-135992-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-135992-1

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 4/28/2020 2:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

Receipt Exceptions
Sample MW-06 was collected over 2 days, and is appropriately submitted as 2 separate samples; however, both samples request TDS and TSS. Per client confirmation on 4/30/20, TDS and TSS can be logged on one or the other. TDS and TSS are not needed on both MW-06 samples. Therefore, TDS and TSS was logged on MW-06 (280-135992-3).

TOTAL RECOVERABLE METALS
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/04/2020 and analyzed on 05/05/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/04/2020 and analyzed on 05/05/2020.

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

TOTAL MERCURY
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 05/04/2020 and analyzed on 05/05/2020.

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

TOTAL DISSOLVED SOLIDS
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6),

Job ID: 280-135992-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/29/2020.

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

TOTAL SUSPENDED SOLIDS
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/30/2020.

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

CORROSIVITY (PH)
Samples MW-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/28/2020 and 04/29/2020.

Sample pH did not equilibrate to 0.05 pH units after 3 measurements: EB-1 (280-135992-9). This was observed in a previous analysis thus the sample 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-05 (280-135992-1), MW-06 (280-135992-3), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/21/2020 and 05/22/2020.

Samples MW-05 (280-135992-1)[20X], MW-06 (280-135992-3)[10X], MW-18 (280-135992-4)[5X], MW-19B (280-135992-5)[10X], MW-25B (280-135992-6)[5X] and MW-20 (280-135992-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

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

RADIUM-226 (GFPC)
Samples MW-06 (280-135992-2), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/07/2020 and analyzed on 05/29/2020.

Initial volumes of samples 280-135992-2, 4, and 7 were reduced due to yellow discoloration and a slight cloudy appearance: MW-06 (280-135992-2), MW-18 (280-135992-4) and MW-20 (280-135992-7).

Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: MW-06 (280-135992-2), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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.

Job ID: 280-135992-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-228

Samples MW-06 (280-135992-2), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/07/2020 and analyzed on 05/20/2020.

Initial volumes of samples 280-135992-2, 4, and 7 were reduced due to yellow discoloration and a slight cloudy appearance: MW-06 (280-135992-2), MW-18 (280-135992-4) and MW-20 (280-135992-7).

Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: MW-06 (280-135992-2), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead 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-06 (280-135992-2), MW-18 (280-135992-4), MW-19B (280-135992-5), MW-25B (280-135992-6), MW-20 (280-135992-7), MW-17 (280-135992-8) and EB-1 (280-135992-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/01/2020.

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

Detection Summary

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-05
Lab Sample ID: 280-135992-1

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
Barium	0.021		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	79		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00060	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0037		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0034	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00072	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0054		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.053		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	39		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.33	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	500		100	21	mg/L	20		9056A	Total/NA
Total Suspended Solids	26		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-06
Lab Sample ID: 280-135992-2

No Detections.

Client Sample ID: MW-06
Lab Sample ID: 280-135992-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.40		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.037		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	330		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00058	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.00062	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0042		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0019	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00098	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.015		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.054		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	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	670		30	10	mg/L	10		9056A	Total/NA
Sulfate	630		50	10	mg/L	10		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-06 (Continued) — Lab Sample ID: 280-135992-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	73		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	2300		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-18 — Lab Sample ID: 280-135992-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.33		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.033		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	36		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00033	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0037		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.022		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0012		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.035		0.0080	0.0017	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	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	29		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.5		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	220		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	210		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	790		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-19B — Lab Sample ID: 280-135992-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	12		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.0016	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0063		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.066		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	56		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0019		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.057		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.52		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0015		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.17		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.0062	J	0.0080	0.0017	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-19B (Continued)
Lab Sample ID: 280-135992-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	53		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1000		50	10	mg/L	10		9056A	Total/NA
Total Suspended Solids	170		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-25B
Lab Sample ID: 280-135992-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66		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	0.0028	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00045	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.096		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0036	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.048		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.51		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	640		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	18		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-20
Lab Sample ID: 280-135992-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.43		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.029		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	41		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00051	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0031		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.028		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0029		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.029		0.0080	0.0017	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-20 (Continued) — Lab Sample ID: 280-135992-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.0	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	67		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	3.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	200		25	5.2	mg/L	5		9056A	Total/NA
Total Suspended Solids	26		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	770		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-17 — Lab Sample ID: 280-135992-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.47		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.14		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	65		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00052	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0074	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0085		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	57		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	160		5.0	1.0	mg/L	1		9056A	Total/NA
Total Suspended Solids	55		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	540		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: EB-1 — Lab Sample ID: 280-135992-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0012	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Total Dissolved Solids (TDS)	14		10	4.7	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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"
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-135992-1	MW-05	Water	04/24/20 13:00	04/28/20 14:20	
280-135992-2	MW-06	Water	04/27/20 10:30	04/28/20 14:20	
280-135992-3	MW-06	Water	04/28/20 12:40	04/28/20 14:20	
280-135992-4	MW-18	Water	04/27/20 16:25	04/28/20 14:20	
280-135992-5	MW-19B	Water	04/27/20 14:25	04/28/20 14:20	
280-135992-6	MW-25B	Water	04/28/20 10:25	04/28/20 14:20	
280-135992-7	MW-20	Water	04/27/20 12:32	04/28/20 14:20	
280-135992-8	MW-17	Water	04/28/20 12:05	04/28/20 14:20	
280-135992-9	EB-1	Water	04/28/20 12:30	04/28/20 14:20	

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

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:10	1

Client Sample ID: MW-06
Date Collected: 04/28/20 12:40
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.40		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:14	1

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.33		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:19	1

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	12		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:23	1

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:28	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.43		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:32	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.47		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:45	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 15:49	1

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

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:04	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:04	1

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

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.021**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:04	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:04	1
Calcium	**79**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:04	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:04	1
Cobalt	**0.00060**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:04	1
Chromium	**0.0037**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:04	1
Molybdenum	**0.0034**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:04	1
Lead	**0.00072**	**J**	0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:04	1
Selenium	**0.0054**		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:04	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:04	1
Lithium	**0.053**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:04	1

Client Sample ID: MW-06
Date Collected: 04/28/20 12:40
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:07	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:07	1
Barium	**0.037**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:07	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:07	1
Calcium	**330**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:07	1
Cadmium	**0.00058**	**J**	0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:07	1
Cobalt	**0.00062**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:07	1
Chromium	**0.0042**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:07	1
Molybdenum	**0.0019**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:07	1
Lead	**0.00098**	**J**	0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:07	1
Selenium	**0.015**		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:07	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:07	1
Lithium	**0.054**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:07	1

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:09	1
Arsenic	**0.0017**	**J**	0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:09	1
Barium	**0.033**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:09	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:09	1
Calcium	**36**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:09	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:09	1
Cobalt	**0.00033**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:09	1
Chromium	**0.0037**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:09	1
Molybdenum	**0.022**		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:09	1
Lead	**0.0012**		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:09	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:09	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:09	1
Lithium	**0.035**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:09	1

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

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0016**	**J**	0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:17	1
Arsenic	**0.0063**		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:17	1
Barium	**0.066**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:17	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:17	1
Calcium	**56**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:17	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:17	1
Cobalt	**0.0019**		0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:17	1
Chromium	**0.057**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:17	1
Molybdenum	**0.52**		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:17	1
Lead	**0.0015**		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:17	1
Selenium	**0.17**		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:17	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:17	1
Lithium	**0.0062**	**J**	0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:17	1

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00062**	**J**	0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:19	1
Arsenic	**0.0028**	**J**	0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:19	1
Barium	**0.020**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:19	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:19	1
Calcium	**130**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:19	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:19	1
Cobalt	**0.00045**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:19	1
Chromium	ND		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:19	1
Molybdenum	**0.096**		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:19	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:19	1
Selenium	**0.0036**	**J**	0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:19	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:19	1
Lithium	**0.048**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:19	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:22	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:22	1
Barium	**0.029**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:22	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:22	1
Calcium	**41**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:22	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:22	1
Cobalt	**0.00051**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:22	1
Chromium	**0.0031**		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:22	1
Molybdenum	**0.028**		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:22	1
Lead	**0.0029**		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:22	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:22	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:22	1
Lithium	**0.029**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:22	1

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

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:24	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:24	1
Barium	**0.14**		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:24	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:24	1
Calcium	**65**		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:24	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:24	1
Cobalt	**0.00052**	**J**	0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:24	1
Chromium	ND		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:24	1
Molybdenum	**0.0074**	**J**	0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:24	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:24	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:24	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:24	1
Lithium	**0.0085**		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:24	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 17:27	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 17:27	1
Barium	ND		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 17:27	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 17:27	1
Calcium	ND		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 17:27	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:27	1
Cobalt	ND		0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 17:27	1
Chromium	**0.0012**	**J**	0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 17:27	1
Molybdenum	ND		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 17:27	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 17:27	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 17:27	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 17:27	1
Lithium	ND		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 17:27	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:35	1

Client Sample ID: MW-06
Date Collected: 04/28/20 12:40
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:37	1

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:39	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:41	1

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:47	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:49	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:51	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 13:53	1

General Chemistry

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			04/28/20 20:59	1
Temperature	21.0	HF	1.0	1.0	Degrees C			04/28/20 20:59	1
Chloride	39		3.0	1.0	mg/L			05/21/20 01:16	1
Fluoride	0.33	J	0.50	0.17	mg/L			05/21/20 01:16	1
Sulfate	500		100	21	mg/L			05/21/20 01:33	20
Total Suspended Solids	26		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	1200		20	9.4	mg/L			04/29/20 08:33	1

Client Sample ID: MW-06
Date Collected: 04/28/20 12:40
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			04/28/20 21:13	1
Temperature	20.3	HF	1.0	1.0	Degrees C			04/28/20 21:13	1
Chloride	670		30	10	mg/L			05/21/20 17:02	10
Fluoride	ND		0.50	0.17	mg/L			05/21/20 16:46	1
Sulfate	630		50	10	mg/L			05/21/20 17:02	10
Total Suspended Solids	73		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	2300		40	19	mg/L			04/29/20 08:33	1

General Chemistry

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/28/20 21:17	1
Temperature	20.3	HF	1.0	1.0	Degrees C			04/28/20 21:17	1
Chloride	29		3.0	1.0	mg/L			05/21/20 17:19	1
Fluoride	2.5		0.50	0.17	mg/L			05/21/20 17:19	1
Sulfate	220		25	5.2	mg/L			05/22/20 18:52	5
Total Suspended Solids	210		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	790		20	9.4	mg/L			04/29/20 08:33	1

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.6	HF	0.1	0.1	SU			04/28/20 21:21	1
Temperature	20.5	HF	1.0	1.0	Degrees C			04/28/20 21:21	1
Chloride	53		3.0	1.0	mg/L			05/21/20 17:35	1
Fluoride	0.45	J	0.50	0.17	mg/L			05/21/20 17:35	1
Sulfate	1000		50	10	mg/L			05/21/20 17:51	10
Total Suspended Solids	170		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L			04/29/20 08:33	1

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
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 21:25	1
Temperature	21.0	HF	1.0	1.0	Degrees C			04/28/20 21:25	1
Chloride	110		3.0	1.0	mg/L			05/21/20 18:08	1
Fluoride	0.51		0.50	0.17	mg/L			05/21/20 18:08	1
Sulfate	640		25	5.2	mg/L			05/22/20 19:10	5
Total Suspended Solids	18		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			04/29/20 08:33	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/28/20 21:29	1
Temperature	20.8	HF	1.0	1.0	Degrees C			04/28/20 21:29	1
Chloride	67		3.0	1.0	mg/L			05/21/20 18:24	1
Fluoride	3.1		0.50	0.17	mg/L			05/21/20 18:24	1
Sulfate	200		25	5.2	mg/L			05/22/20 19:28	5
Total Suspended Solids	26		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	770		20	9.4	mg/L			04/29/20 08:33	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/28/20 21:35	1
Temperature	20.5	HF	1.0	1.0	Degrees C			04/28/20 21:35	1

General Chemistry (Continued)

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57**		3.0	1.0	mg/L			05/21/20 19:13	1
Fluoride	**1.2**		0.50	0.17	mg/L			05/21/20 19:13	1
Sulfate	**160**		5.0	1.0	mg/L			05/21/20 19:13	1
Total Suspended Solids	**55**		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	**540**		10	4.7	mg/L			04/29/20 08:33	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.9**	**HF**	0.1	0.1	SU			04/29/20 21:03	1
Temperature	**21.4**	**HF**	1.0	1.0	Degrees C			04/29/20 21:03	1
Chloride	ND		3.0	1.0	mg/L			05/21/20 20:19	1
Fluoride	ND		0.50	0.17	mg/L			05/21/20 20:19	1
Sulfate	ND		5.0	1.0	mg/L			05/21/20 20:19	1
Total Suspended Solids	**4.0**		4.0	1.1	mg/L			04/30/20 09:14	1
Total Dissolved Solids (TDS)	**14**		10	4.7	mg/L			04/29/20 08:33	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-06
Date Collected: 04/27/20 10:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.243**		0.112	0.114	1.00	0.117	pCi/L	05/07/20 17:59	05/29/20 08:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*05/07/20 17:59*	*05/29/20 08:36*	*1*

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.251**		0.160	0.162	1.00	0.225	pCi/L	05/07/20 17:59	05/29/20 08:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.9*		*40 - 110*	*05/07/20 17:59*	*05/29/20 08:36*	*1*

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0842	U	0.0910	0.0913	1.00	0.144	pCi/L	05/07/20 17:59	05/29/20 08:36	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	75.3		40 - 110	05/07/20 17:59	05/29/20 08:36	1

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.146		0.0918	0.0927	1.00	0.123	pCi/L	05/07/20 17:59	05/29/20 08:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110	05/07/20 17:59	05/29/20 08:36	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.289		0.136	0.138	1.00	0.162	pCi/L	05/07/20 17:59	05/29/20 08:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.0		40 - 110	05/07/20 17:59	05/29/20 08:37	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.144		0.0848	0.0858	1.00	0.109	pCi/L	05/07/20 17:59	05/29/20 08:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110	05/07/20 17:59	05/29/20 08:37	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0336	U	0.0763	0.0764	1.00	0.137	pCi/L	05/07/20 17:59	05/29/20 08:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		40 - 110	05/07/20 17:59	05/29/20 08:37	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-06
Date Collected: 04/27/20 10:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.755		0.348	0.355	1.00	0.503	pCi/L	05/07/20 18:33	05/20/20 11:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:49*	*1*
Y Carrier	*92.7*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:49*	*1*

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.761		0.428	0.434	1.00	0.646	pCi/L	05/07/20 18:33	05/20/20 11:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.9*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:49*	*1*
Y Carrier	*90.5*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:49*	*1*

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.233	U	0.398	0.398	1.00	0.671	pCi/L	05/07/20 18:33	05/20/20 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.3*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:51*	*1*
Y Carrier	*93.8*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:51*	*1*

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.246	U	0.302	0.303	1.00	0.500	pCi/L	05/07/20 18:33	05/20/20 11:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.6*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:51*	*1*
Y Carrier	*90.5*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:51*	*1*

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.989		0.437	0.446	1.00	0.644	pCi/L	05/07/20 18:33	05/20/20 11:52	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.0		40 - 110	05/07/20 18:33	05/20/20 11:52	1
Y Carrier	89.0		40 - 110	05/07/20 18:33	05/20/20 11:52	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.246	U	0.261	0.262	1.00	0.426	pCi/L	05/07/20 18:33	05/20/20 11:52	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110	05/07/20 18:33	05/20/20 11:52	1
Y Carrier	90.1		40 - 110	05/07/20 18:33	05/20/20 11:52	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.245	0.246	1.00	0.416	pCi/L	05/07/20 18:33	05/20/20 11:52	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.2		40 - 110	05/07/20 18:33	05/20/20 11:52	1
Y Carrier	92.7		40 - 110	05/07/20 18:33	05/20/20 11:52	1

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

Client Sample ID: MW-06
Date Collected: 04/27/20 10:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.998**		0.366	0.373	5.00	0.503	pCi/L		06/01/20 07:46	1

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.01**		0.457	0.463	5.00	0.646	pCi/L		06/01/20 07:46	1

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.317	U	0.408	0.408	5.00	0.671	pCi/L		06/01/20 07:46	1

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

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.393	U	0.316	0.317	5.00	0.500	pCi/L		06/01/20 07:46	1

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.28**		0.458	0.467	5.00	0.644	pCi/L		06/01/20 07:46	1

Client Sample ID: MW-17
Date Collected: 04/28/20 12:05
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.390	U	0.274	0.276	5.00	0.426	pCi/L		06/01/20 07:46	1

Client Sample ID: EB-1
Date Collected: 04/28/20 12:30
Date Received: 04/28/20 14:20
Lab Sample ID: 280-135992-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.168	U	0.257	0.258	5.00	0.416	pCi/L		06/01/20 07:46	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-433021/1-A
Matrix: Water
Analysis Batch: 433334

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/04/20 14:00	05/05/20 13:29	1

Lab Sample ID: LCS 240-433021/2-A
Matrix: Water
Analysis Batch: 433334

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.04		mg/L		104	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-433021/1-A
Matrix: Water
Analysis Batch: 433358

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/04/20 14:00	05/05/20 16:17	1
Arsenic	ND		0.0050	0.00075	mg/L		05/04/20 14:00	05/05/20 16:17	1
Barium	ND		0.0050	0.0022	mg/L		05/04/20 14:00	05/05/20 16:17	1
Beryllium	ND		0.0010	0.00031	mg/L		05/04/20 14:00	05/05/20 16:17	1
Calcium	ND		1.0	0.58	mg/L		05/04/20 14:00	05/05/20 16:17	1
Cadmium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:17	1
Cobalt	ND		0.0010	0.00019	mg/L		05/04/20 14:00	05/05/20 16:17	1
Chromium	ND		0.0020	0.00098	mg/L		05/04/20 14:00	05/05/20 16:17	1
Molybdenum	ND		0.010	0.0011	mg/L		05/04/20 14:00	05/05/20 16:17	1
Lead	ND		0.0010	0.00045	mg/L		05/04/20 14:00	05/05/20 16:17	1
Selenium	ND		0.0050	0.00089	mg/L		05/04/20 14:00	05/05/20 16:17	1
Thallium	ND		0.0010	0.00020	mg/L		05/04/20 14:00	05/05/20 16:17	1
Lithium	ND		0.0080	0.0017	mg/L		05/04/20 14:00	05/05/20 16:17	1

Lab Sample ID: LCS 240-433021/3-A
Matrix: Water
Analysis Batch: 433358

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 433021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0964		mg/L		96	80 - 120
Arsenic	1.00	0.945		mg/L		94	80 - 120
Barium	1.00	0.930		mg/L		93	80 - 120
Beryllium	0.500	0.463		mg/L		93	80 - 120
Calcium	25.0	23.5		mg/L		94	80 - 120
Cadmium	0.500	0.448		mg/L		90	80 - 120
Cobalt	0.500	0.487		mg/L		97	80 - 120
Chromium	0.500	0.477		mg/L		95	80 - 120
Molybdenum	0.500	0.481		mg/L		96	80 - 120
Lead	0.500	0.473		mg/L		95	80 - 120
Selenium	1.00	0.871		mg/L		87	80 - 120
Thallium	1.00	0.887		mg/L		89	80 - 120
Lithium	0.500	0.433		mg/L		87	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-433022/1-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433022

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/04/20 12:00	05/05/20 12:58	1

Lab Sample ID: LCS 240-433022/2-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433022

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.79		ug/L		96	80 - 120

Method: 9040B - pH

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

Lab Sample ID: 280-135992-1 DU
Matrix: Water
Analysis Batch: 493155

Client Sample ID: MW-05
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.6	HF	7.7		SU		0.8	5
Temperature	21.0	HF	20.4		Degrees C		3	10

Lab Sample ID: LCS 280-493265/4
Matrix: Water
Analysis Batch: 493265

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 280-495532/6
Matrix: Water
Analysis Batch: 495532

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			05/20/20 12:20	1
Fluoride	ND		0.50	0.17	mg/L			05/20/20 12:20	1
Sulfate	ND		5.0	1.0	mg/L			05/20/20 12:20	1

Lab Sample ID: LCS 280-495532/4
Matrix: Water
Analysis Batch: 495532

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

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

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

Lab Sample ID: LCS 280-495532/4
Matrix: Water
Analysis Batch: 495532

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.12		mg/L		102	90 - 110
Sulfate	100	99.7		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-495532/5
Matrix: Water
Analysis Batch: 495532

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.12		mg/L		102	90 - 110	0	10
Sulfate	100	99.4		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-495532/3
Matrix: Water
Analysis Batch: 495532

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	4.90		mg/L		98	50 - 150
Fluoride	0.500	0.525		mg/L		105	50 - 150
Sulfate	5.00	4.81	J	mg/L		96	50 - 150

Lab Sample ID: MB 280-495711/6
Matrix: Water
Analysis Batch: 495711

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			05/21/20 10:44	1
Fluoride	ND		0.50	0.17	mg/L			05/21/20 10:44	1
Sulfate	ND		5.0	1.0	mg/L			05/21/20 10:44	1

Lab Sample ID: LCS 280-495711/4
Matrix: Water
Analysis Batch: 495711

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	99.3		mg/L		99	90 - 110
Fluoride	5.00	4.99		mg/L		100	90 - 110
Sulfate	100	98.6		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-495711/5
Matrix: Water
Analysis Batch: 495711

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.2		mg/L		99	90 - 110	0	10
Fluoride	5.00	5.00		mg/L		100	90 - 110	0	10
Sulfate	100	98.6		mg/L		99	90 - 110	0	10

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

Lab Sample ID: MRL 280-495711/3
Matrix: Water
Analysis Batch: 495711

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			5.00	5.14		mg/L		103	50 - 150		
Fluoride			0.500	0.539		mg/L		108	50 - 150		
Sulfate			5.00	5.29		mg/L		106	50 - 150		

Lab Sample ID: 280-135992-8 MS
Matrix: Water
Analysis Batch: 495711

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	57		50.0	107		mg/L		101	80 - 120		
Fluoride	1.2		5.00	5.68		mg/L		90	80 - 120		
Sulfate	160		50.0	207	E	mg/L		101	80 - 120		

Lab Sample ID: 280-135992-8 MSD
Matrix: Water
Analysis Batch: 495711

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	57		50.0	108		mg/L		103	80 - 120	1	20
Fluoride	1.2		5.00	5.74		mg/L		91	80 - 120	1	20
Sulfate	160		50.0	207	E	mg/L		101	80 - 120	0	20

Lab Sample ID: 280-135992-8 DU
Matrix: Water
Analysis Batch: 495711

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	57		57.1		mg/L				0.4	15
Fluoride	1.2		1.22		mg/L				3	15
Sulfate	160		157		mg/L				0.2	15

Lab Sample ID: MB 280-495877/6
Matrix: Water
Analysis Batch: 495877

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			05/22/20 13:55	1

Lab Sample ID: LCS 280-495877/4
Matrix: Water
Analysis Batch: 495877

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			100	97.4		mg/L		97	90 - 110		

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

Lab Sample ID: LCSD 280-495877/5
Matrix: Water
Analysis Batch: 495877

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100	97.1		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-495877/3
Matrix: Water
Analysis Batch: 495877

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.40	J	mg/L		88	50 - 150

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

Lab Sample ID: MB 280-493299/1
Matrix: Water
Analysis Batch: 493299

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			04/30/20 09:14	1

Lab Sample ID: LCS 280-493299/2
Matrix: Water
Analysis Batch: 493299

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	89.2		mg/L		89	79 - 114

Lab Sample ID: LCSD 280-493299/3
Matrix: Water
Analysis Batch: 493299

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	105		mg/L		105	79 - 114	16	20

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-493119/1
Matrix: Water
Analysis Batch: 493119

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			04/29/20 08:33	1

Lab Sample ID: LCS 280-493119/2
Matrix: Water
Analysis Batch: 493119

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	505		mg/L		101	93 - 110

Method: SM2540 C - Total Dissolved Solids (Continued)

Lab Sample ID: LCSD 280-493119/3
Matrix: Water
Analysis Batch: 493119

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	511		mg/L		102	93 - 110	1	20

Lab Sample ID: 280-135992-9 DU
Matrix: Water
Analysis Batch: 493119

Client Sample ID: EB-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	14			14.0		mg/L				0	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469868/22-A
Matrix: Water
Analysis Batch: 471435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469868

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01450	U	0.0598	0.0598	1.00	0.130	pCi/L	05/07/20 17:59	05/29/20 08:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.4*		*40 - 110*	*05/07/20 17:59*	*05/29/20 08:37*	*1*

Lab Sample ID: LCS 160-469868/1-A
Matrix: Water
Analysis Batch: 471435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469868

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.739		1.04	1.00	0.122	pCi/L	86	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*87.7*		*40 - 110*

Lab Sample ID: LCSD 160-469868/2-A
Matrix: Water
Analysis Batch: 471435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469868

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.705		1.03	1.00	0.111	pCi/L	86	75 - 125	0.02	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*83.7*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469869/22-A
Matrix: Water
Analysis Batch: 470959

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469869

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1579	U	0.302	0.302	1.00	0.512	pCi/L	05/07/20 18:33	05/20/20 11:52	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.4*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:52*	*1*
Y Carrier	*90.1*		*40 - 110*	*05/07/20 18:33*	*05/20/20 11:52*	*1*

Lab Sample ID: LCS 160-469869/1-A
Matrix: Water
Analysis Batch: 470958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469869

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.83	8.806		1.04	1.00	0.401	pCi/L	100	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*87.7*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Lab Sample ID: LCSD 160-469869/2-A
Matrix: Water
Analysis Batch: 470958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 469869

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.83	8.216		0.987	1.00	0.397	pCi/L	93	75 - 125	0.29	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*83.7*		*40 - 110*
Y Carrier	*94.2*		*40 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Metals

Prep Batch: 433021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total Recoverable	Water	3005A	
280-135992-3	MW-06	Total Recoverable	Water	3005A	
280-135992-4	MW-18	Total Recoverable	Water	3005A	
280-135992-5	MW-19B	Total Recoverable	Water	3005A	
280-135992-6	MW-25B	Total Recoverable	Water	3005A	
280-135992-7	MW-20	Total Recoverable	Water	3005A	
280-135992-8	MW-17	Total Recoverable	Water	3005A	
280-135992-9	EB-1	Total Recoverable	Water	3005A	
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-433021/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-433021/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 433022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	7470A	
280-135992-3	MW-06	Total/NA	Water	7470A	
280-135992-4	MW-18	Total/NA	Water	7470A	
280-135992-5	MW-19B	Total/NA	Water	7470A	
280-135992-6	MW-25B	Total/NA	Water	7470A	
280-135992-7	MW-20	Total/NA	Water	7470A	
280-135992-8	MW-17	Total/NA	Water	7470A	
280-135992-9	EB-1	Total/NA	Water	7470A	
MB 240-433022/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-433022/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 433334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total Recoverable	Water	6010C	433021
280-135992-3	MW-06	Total Recoverable	Water	6010C	433021
280-135992-4	MW-18	Total Recoverable	Water	6010C	433021
280-135992-5	MW-19B	Total Recoverable	Water	6010C	433021
280-135992-6	MW-25B	Total Recoverable	Water	6010C	433021
280-135992-7	MW-20	Total Recoverable	Water	6010C	433021
280-135992-8	MW-17	Total Recoverable	Water	6010C	433021
280-135992-9	EB-1	Total Recoverable	Water	6010C	433021
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	6010C	433021
LCS 240-433021/2-A	Lab Control Sample	Total Recoverable	Water	6010C	433021

Analysis Batch: 433338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	7470A	433022
280-135992-3	MW-06	Total/NA	Water	7470A	433022
280-135992-4	MW-18	Total/NA	Water	7470A	433022
280-135992-5	MW-19B	Total/NA	Water	7470A	433022
280-135992-6	MW-25B	Total/NA	Water	7470A	433022
280-135992-7	MW-20	Total/NA	Water	7470A	433022
280-135992-8	MW-17	Total/NA	Water	7470A	433022
280-135992-9	EB-1	Total/NA	Water	7470A	433022
MB 240-433022/1-A	Method Blank	Total/NA	Water	7470A	433022
LCS 240-433022/2-A	Lab Control Sample	Total/NA	Water	7470A	433022

Metals

Analysis Batch: 433358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total Recoverable	Water	6020A	433021
280-135992-3	MW-06	Total Recoverable	Water	6020A	433021
280-135992-4	MW-18	Total Recoverable	Water	6020A	433021
280-135992-5	MW-19B	Total Recoverable	Water	6020A	433021
280-135992-6	MW-25B	Total Recoverable	Water	6020A	433021
280-135992-7	MW-20	Total Recoverable	Water	6020A	433021
280-135992-8	MW-17	Total Recoverable	Water	6020A	433021
280-135992-9	EB-1	Total Recoverable	Water	6020A	433021
MB 240-433021/1-A	Method Blank	Total Recoverable	Water	6020A	433021
LCS 240-433021/3-A	Lab Control Sample	Total Recoverable	Water	6020A	433021

General Chemistry

Analysis Batch: 493119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	SM2540 C	
280-135992-3	MW-06	Total/NA	Water	SM2540 C	
280-135992-4	MW-18	Total/NA	Water	SM2540 C	
280-135992-5	MW-19B	Total/NA	Water	SM2540 C	
280-135992-6	MW-25B	Total/NA	Water	SM2540 C	
280-135992-7	MW-20	Total/NA	Water	SM2540 C	
280-135992-8	MW-17	Total/NA	Water	SM2540 C	
280-135992-9	EB-1	Total/NA	Water	SM2540 C	
MB 280-493119/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-493119/2	Lab Control Sample	Total/NA	Water	SM2540 C	
LCSD 280-493119/3	Lab Control Sample Dup	Total/NA	Water	SM2540 C	
280-135992-9 DU	EB-1	Total/NA	Water	SM2540 C	

Analysis Batch: 493155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	9040B	
280-135992-3	MW-06	Total/NA	Water	9040B	
280-135992-4	MW-18	Total/NA	Water	9040B	
280-135992-5	MW-19B	Total/NA	Water	9040B	
280-135992-6	MW-25B	Total/NA	Water	9040B	
280-135992-7	MW-20	Total/NA	Water	9040B	
280-135992-8	MW-17	Total/NA	Water	9040B	
LCS 280-493155/4	Lab Control Sample	Total/NA	Water	9040B	
280-135992-1 DU	MW-05	Total/NA	Water	9040B	

Analysis Batch: 493265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-9	EB-1	Total/NA	Water	9040B	
LCS 280-493265/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 493299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	SM 2540D	
280-135992-3	MW-06	Total/NA	Water	SM 2540D	
280-135992-4	MW-18	Total/NA	Water	SM 2540D	
280-135992-5	MW-19B	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 493299 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-6	MW-25B	Total/NA	Water	SM 2540D	
280-135992-7	MW-20	Total/NA	Water	SM 2540D	
280-135992-8	MW-17	Total/NA	Water	SM 2540D	
280-135992-9	EB-1	Total/NA	Water	SM 2540D	
MB 280-493299/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-493299/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-493299/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 495532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-1	MW-05	Total/NA	Water	9056A	
280-135992-1	MW-05	Total/NA	Water	9056A	
MB 280-495532/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495532/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495532/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495532/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 495711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-3	MW-06	Total/NA	Water	9056A	
280-135992-3	MW-06	Total/NA	Water	9056A	
280-135992-4	MW-18	Total/NA	Water	9056A	
280-135992-5	MW-19B	Total/NA	Water	9056A	
280-135992-5	MW-19B	Total/NA	Water	9056A	
280-135992-6	MW-25B	Total/NA	Water	9056A	
280-135992-7	MW-20	Total/NA	Water	9056A	
280-135992-8	MW-17	Total/NA	Water	9056A	
280-135992-9	EB-1	Total/NA	Water	9056A	
MB 280-495711/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495711/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495711/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495711/3	Lab Control Sample	Total/NA	Water	9056A	
280-135992-8 MS	MW-17	Total/NA	Water	9056A	
280-135992-8 MSD	MW-17	Total/NA	Water	9056A	
280-135992-8 DU	MW-17	Total/NA	Water	9056A	

Analysis Batch: 495877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-4	MW-18	Total/NA	Water	9056A	
280-135992-6	MW-25B	Total/NA	Water	9056A	
280-135992-7	MW-20	Total/NA	Water	9056A	
MB 280-495877/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495877/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495877/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495877/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 469868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-2	MW-06	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 469868 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-4	MW-18	Total/NA	Water	PrecSep-21	
280-135992-5	MW-19B	Total/NA	Water	PrecSep-21	
280-135992-6	MW-25B	Total/NA	Water	PrecSep-21	
280-135992-7	MW-20	Total/NA	Water	PrecSep-21	
280-135992-8	MW-17	Total/NA	Water	PrecSep-21	
280-135992-9	EB-1	Total/NA	Water	PrecSep-21	
MB 160-469868/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469868/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-469868/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 469869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-135992-2	MW-06	Total/NA	Water	PrecSep_0	
280-135992-4	MW-18	Total/NA	Water	PrecSep_0	
280-135992-5	MW-19B	Total/NA	Water	PrecSep_0	
280-135992-6	MW-25B	Total/NA	Water	PrecSep_0	
280-135992-7	MW-20	Total/NA	Water	PrecSep_0	
280-135992-8	MW-17	Total/NA	Water	PrecSep_0	
280-135992-9	EB-1	Total/NA	Water	PrecSep_0	
MB 160-469869/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469869/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-469869/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-05
Date Collected: 04/24/20 13:00
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-1
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:10	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:04	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:35	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 20:59	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495532	05/21/20 01:16	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495532	05/21/20 01:33	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN

Client Sample ID: MW-06
Date Collected: 04/27/20 10:30
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.34 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:36	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			749.34 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470958	05/20/20 11:49	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Client Sample ID: MW-06
Date Collected: 04/28/20 12:40
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-3
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:14	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:07	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:37	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:13	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 16:46	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495711	05/21/20 17:02	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN

Client Sample ID: MW-18
Date Collected: 04/27/20 16:25
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-4
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:19	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:09	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:39	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:17	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495877	05/22/20 18:52	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 17:19	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			750.31 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:36	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			750.31 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470958	05/20/20 11:49	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Client Sample ID: MW-19B
Date Collected: 04/27/20 14:25
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-5
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:23	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:17	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:41	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:21	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 17:35	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495711	05/21/20 17:51	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			750.08 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:36	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			750.08 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 11:51	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Client Sample ID: MW-25B
Date Collected: 04/28/20 10:25
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-6
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:28	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:19	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:47	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:25	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495877	05/22/20 19:10	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 18:08	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.18 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:36	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.18 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 11:51	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Client Sample ID: MW-20
Date Collected: 04/27/20 12:32
Date Received: 04/28/20 14:20

Lab Sample ID: 280-135992-7
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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:32	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:22	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:49	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:29	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495877	05/22/20 19:28	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 18:24	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			750.90 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:37	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			750.90 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 11:52	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-17
Lab Sample ID: 280-135992-8
Date Collected: 04/28/20 12:05
Matrix: Water
Date Received: 04/28/20 14:20

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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:45	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:24	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:51	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493155	04/28/20 21:35	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 19:13	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.43 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:37	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			999.43 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1			470959	05/20/20 11:52	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	SMP	TAL SL

Client Sample ID: EB-1
Lab Sample ID: 280-135992-9
Date Collected: 04/28/20 12:30
Matrix: Water
Date Received: 04/28/20 14:20

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	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			433334	05/05/20 15:49	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	433021	05/04/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			433358	05/05/20 17:27	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	433022	05/04/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			433338	05/05/20 13:53	SLD	TAL CAN
Total/NA	Analysis	9040B		1			493265	04/29/20 21:03	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495711	05/21/20 20:19	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	493299	04/30/20 09:14	FRG	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	493119	04/29/20 08:33	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.53 mL	1.0 g	469868	05/07/20 17:59	MNH	TAL SL
Total/NA	Analysis	9315		1			471435	05/29/20 08:37	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			1000.53 mL	1.0 g	469869	05/07/20 18:33	MNH	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	470959	05/20/20 11:52	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471610	06/01/20 07:46	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
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	04-30-21
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	06-30-20
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
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing TestAmerica

Client Information	Sampler: A. Morgan	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-98365-29694.1
Client Contact: Molly Reeves	Phone: 832-418-3307	E-Mail: darlene.bandy@testamericainc.com		Page: ~~Page 1 of 3~~ AM 4-28-20 Page 1 of 1
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Colorado	SSOW#:			

Analysis Requested

280-135992 Chain of Custody

Preservation Codes: 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); J - DI Water; K - EDTA; L - EDA; Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A	9040B, 9056A_28D	2540C_Calcd, 2540D	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW-05	4-24-20	1300	G	Water	N	N	X	X	X		2	For Questions contact
MW-06	4-27-20	1030	G	Water	N	N			X	X	2	Molly Reeves:
MW-06	4-28-20	1240	G	Water	N	N	X	X	X		5	734-263-7138
MW-18	4-27-20	1625	G	Water	N	N	X	X	X	X	7	
MW-19B	4-27-20	1425	G	Water	N	N	X	X	X	X	7	
MW-25B	4-28-20	1025	G	Water	N	N	X	X	X	X	7	
MW-20	4-27-20	1232	G	Water	N	N	X	X	X	X	7	
MW-17	4-28-20	1205	G	Water	N	N	X	X	X	X	7	
EB-1	4-28-20	1230	G	Water	N	N	X	X	X	X	7	
				Water								
				Water								

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4-28-20 1420	HDR		04/28/2020 1420	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 1.0, 3.4, 1.1 °C IR 8+06 JL 4-28-20

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-522999.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135992-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/28/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-06 (280-135992-2)	4/27/20	10:30 Mountain		Water			X	X	X	2	
MW-18 (280-135992-4)	4/27/20	16:25 Mountain		Water			X	X	X	2	
MW-19B (280-135992-5)	4/27/20	14:25 Mountain		Water			X	X	X	2	
MW-25B (280-135992-6)	4/28/20	10:25 Mountain		Water			X	X	X	2	
MW-20 (280-135992-7)	4/27/20	12:32 Mountain		Water			X	X	X	2	
MW-17 (280-135992-8)	4/28/20	12:05 Mountain		Water			X	X	X	2	
EB-1 (280-135992-9)	4/28/20	12:30 Mountain		Water			X	X	X	2	

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

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	5/1/2020 1305		FE		
Relinquished by: FE	Date/Time:	Company	Received by: Michaka Jenkins	Date/Time: 5/4/2020 08:48	Company ETA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5/4/2020	Company

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

Ver: 01/16/2019

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

11.2 | 11.9

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-522842.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-135992-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/22/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S13

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-05 (280-135992-1)	4/24/20	13:00 Mountain		Water			X	X	X	1	Use Collision Cell
MW-06 (280-135992-3)	4/28/20	12:40 Mountain		Water			X	X	X	2	Use Collision Cell
MW-18 (280-135992-4)	4/27/20	16:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-19B (280-135992-5)	4/27/20	14:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-25B (280-135992-6)	4/28/20	10:25 Mountain		Water			X	X	X	2	Use Collision Cell
MW-20 (280-135992-7)	4/27/20	12:32 Mountain		Water			X	X	X	2	Use Collision Cell
MW-17 (280-135992-8)	4/28/20	12:05 Mountain		Water			X	X	X	2	Use Collision Cell
EB-1 (280-135992-9)	4/28/20	12:30 Mountain		Water			X	X	X	2	Use Collision Cell

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/30/2020 1415			5-1-20 1120	ETAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client ETA Denver Site Name _____ Cooler unpacked by: MMH

Cooler Received on 5-1-20 Opened on 5-1-20

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

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

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

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 11.2 °C Corrected Cooler Temp. 11.9 °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
-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 pH Strip Lot# HC902937
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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: 280-135992-1

Login Number: 135992
List Number: 1
Creator: Bentley, Beau J

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-135992-1

Login Number: 135992
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/04/20 04:56 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-135992-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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)
280-135992-2	MW-06	87.3
280-135992-4	MW-18	72.9
280-135992-5	MW-19B	75.3
280-135992-6	MW-25B	84.6
280-135992-7	MW-20	88.0
280-135992-8	MW-17	84.6
280-135992-9	EB-1	82.2
LCS 160-469868/1-A	Lab Control Sample	87.7
LCSD 160-469868/2-A	Lab Control Sample Dup	83.7
MB 160-469868/22-A	Method Blank	80.4

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)
280-135992-2	MW-06	87.3	92.7
280-135992-4	MW-18	72.9	90.5
280-135992-5	MW-19B	75.3	93.8
280-135992-6	MW-25B	84.6	90.5
280-135992-7	MW-20	88.0	89.0
280-135992-8	MW-17	84.6	90.1
280-135992-9	EB-1	82.2	92.7
LCS 160-469869/1-A	Lab Control Sample	87.7	90.8
LCSD 160-469869/2-A	Lab Control Sample Dup	83.7	94.2
MB 160-469869/22-A	Method Blank	80.4	90.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-136112-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
6/3/2020 7:08:02 PM

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

LINKS

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www.eurofinsus.com/Env

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
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)

Job ID: 280-136112-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-136112-1

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 sample was received on 4/30/2020 4:00 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

Receipt Exceptions
Only 1 x 1L Nitric Acid preserved plastic container was submitted for sample MW-05 (280-136112-1) for the requested RadChem analyses. This was due to limited sample volume.

CORROSIVITY (PH)
Sample MW-05 (280-136112-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/30/2020.

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

ANIONS (28 DAYS)
Sample MW-05 (280-136112-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/22/2020.

Sample MW-05 (280-136112-1)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Sample MW-05 (280-136112-1) was analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/11/2020 and analyzed on 06/02/2020.

The following sample was prepared at a reduced aliquot: MW-05 (280-136112-1). Sample has a cloudy appearance.

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.

Job ID: 280-136112-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

MW-05 (280-136112-1), (LCS 160-469993/1-A), (MB 160-469993/23-A), (500-181249-D-1-A) and (500-181249-D-1-B DU)

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

RADIUM-228

Sample MW-05 (280-136112-1) was analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/11/2020 and analyzed on 05/27/2020.

The following sample was prepared at a reduced aliquot: MW-05 (280-136112-1). Sample has a cloudy appearance.

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.
MW-05 (280-136112-1), (LCS 160-469993/1-A), (MB 160-469993/23-A), (500-181249-D-1-A) and (500-181249-D-1-B DU)

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

RADIUM-226/RADIUM-228 (GFPC)

Sample MW-05 (280-136112-1) was analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/02/2020.

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

Detection Summary

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-05
Lab Sample ID: 280-136112-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	36		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.18	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	470		100	21	mg/L	20		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Method	Method Description	Protocol	Laboratory
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	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
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

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

Laboratory References:

TAL 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: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136112-1	MW-05	Water	04/30/20 13:45	04/30/20 16:00	

General Chemistry

Client Sample ID: MW-05
Date Collected: 04/30/20 13:45
Date Received: 04/30/20 16:00
Lab Sample ID: 280-136112-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			04/30/20 20:35	1
Temperature	21.2	HF	1.0	1.0	Degrees C			04/30/20 20:35	1
Chloride	36		3.0	1.0	mg/L			05/22/20 20:20	1
Fluoride	0.18	J	0.50	0.17	mg/L			05/22/20 20:20	1
Sulfate	470		100	21	mg/L			05/22/20 21:10	20

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-05
Date Collected: 04/30/20 13:45
Date Received: 04/30/20 16:00
Lab Sample ID: 280-136112-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.292		0.152	0.154	1.00	0.196	pCi/L	05/11/20 10:44	06/02/20 08:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.3*		*40 - 110*	*05/11/20 10:44*	*06/02/20 08:11*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-05
Date Collected: 04/30/20 13:45
Date Received: 04/30/20 16:00
Lab Sample ID: 280-136112-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.594		0.307	0.312	1.00	0.444	pCi/L	05/11/20 11:12	05/27/20 11:02	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.3*		*40 - 110*	*05/11/20 11:12*	*05/27/20 11:02*	*1*
Y Carrier	*90.1*		*40 - 110*	*05/11/20 11:12*	*05/27/20 11:02*	*1*

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

Client Sample ID: MW-05
Date Collected: 04/30/20 13:45
Date Received: 04/30/20 16:00
Lab Sample ID: 280-136112-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.885		0.343	0.348	5.00	0.444	pCi/L		06/02/20 12:48	1

Method: 9040B - pH

Lab Sample ID: LCS 280-493444/4
Matrix: Water
Analysis Batch: 493444

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 280-495875/6
Matrix: Water
Analysis Batch: 495875

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			05/22/20 12:27	1
Fluoride	ND		0.50	0.17	mg/L			05/22/20 12:27	1
Sulfate	ND		5.0	1.0	mg/L			05/22/20 12:27	1

Lab Sample ID: LCS 280-495875/4
Matrix: Water
Analysis Batch: 495875

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.0		mg/L		96	90 - 110
Fluoride	5.00	4.61		mg/L		92	90 - 110
Sulfate	100	94.2		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-495875/5
Matrix: Water
Analysis Batch: 495875

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	95.8		mg/L		96	90 - 110	0	10
Fluoride	5.00	4.61		mg/L		92	90 - 110	0	10
Sulfate	100	94.0		mg/L		94	90 - 110	0	10

Lab Sample ID: MRL 280-495875/3
Matrix: Water
Analysis Batch: 495875

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
Fluoride	0.500	0.482	J	mg/L		96	50 - 150
Sulfate	5.00	4.41	J	mg/L		88	50 - 150

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-469993/23-A
Matrix: Water
Analysis Batch: 471667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469993

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04301	U	0.0527	0.0529	1.00	0.0852	pCi/L	05/11/20 10:44	06/02/20 08:12	1

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

Lab Sample ID: MB 160-469993/23-A
Matrix: Water
Analysis Batch: 471667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469993

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110	05/11/20 10:44	06/02/20 08:12	1

Lab Sample ID: LCS 160-469993/1-A
Matrix: Water
Analysis Batch: 471667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469993

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.701		1.05	1.00	0.101	pCi/L	85	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	87.0		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-469995/23-A
Matrix: Water
Analysis Batch: 471336

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469995

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.02092	U	0.186	0.186	1.00	0.333	pCi/L	05/11/20 11:12	05/27/20 11:03	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110	05/11/20 11:12	05/27/20 11:03	1
Y Carrier	95.7		40 - 110	05/11/20 11:12	05/27/20 11:03	1

Lab Sample ID: LCS 160-469995/1-A
Matrix: Water
Analysis Batch: 471338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469995

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.80	9.582		1.13	1.00	0.484	pCi/L	109	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	87.0		40 - 110
Y Carrier	86.7		40 - 110

QC Association Summary

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

General Chemistry

Analysis Batch: 493444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136112-1	MW-05	Total/NA	Water	9040B	
LCS 280-493444/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 495875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136112-1	MW-05	Total/NA	Water	9056A	
280-136112-1	MW-05	Total/NA	Water	9056A	
MB 280-495875/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495875/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495875/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495875/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 469993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136112-1	MW-05	Total/NA	Water	PrecSep-21	
MB 160-469993/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-469993/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 469995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136112-1	MW-05	Total/NA	Water	PrecSep_0	
MB 160-469995/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-469995/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-05
Date Collected: 04/30/20 13:45
Date Received: 04/30/20 16:00

Lab Sample ID: 280-136112-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			493444	04/30/20 20:35	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495875	05/22/20 20:20	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	495875	05/22/20 21:10	JAP	TAL DEN
Total/NA	Prep	PrecSep-21			750.60 mL	1.0 g	469993	05/11/20 10:44	RBR	TAL SL
Total/NA	Analysis	9315		1			471667	06/02/20 08:11	KLS	TAL SL
Total/NA	Prep	PrecSep_0			750.60 mL	1.0 g	469995	05/11/20 11:12	RBR	TAL SL
Total/NA	Analysis	9320		1			471336	05/27/20 11:02	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			471698	06/02/20 12:48	SMP	TAL SL

Laboratory References:

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

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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, 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

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

Chain of Custody Record

Denver #280

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Client Information	Sampler: JACOB MOORMAN	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-98365-29694.1
Client Contact: Molly Reeves	Phone: 210-863-7030	E-Mail: darlene.bandy@testamericainc.com		Page: Page 1 of 3
Company: HDR Inc				Job #: 10125968
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Colorado	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A	9040B, 9056A_28D	2540C_Calcd, 2540D	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
MW- 05	04-30-20	1345	G	Water	N	N		X		X	2	QUESTIONS, CALL MOLLY REEVES
MW-				Water								
MW-				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

280-136112 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time	Company		Date/Time	Company
Relinquished by: [signature]	04/30/2020/1600	HDR	Received by: [signature]	4-30-20 1600	ETA Rm
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 3.6 IR#8 +0.6 Transfer RP 4/30/20

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-523006.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: darlene.bandy@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-136112-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/1/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-05 (280-136112-1)	4/30/20	13:45 Mountain		Water			X	X	X	1	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/1/2020 1305		FE		
2	FE			Michal Lorinshiges	5/4/2020 08:48	ETA STL
3						

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-136112-1

Login Number: 136112
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-136112-1

Login Number: 136112
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/04/20 04:56 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-136112-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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)
280-136112-1	MW-05	84.3
LCS 160-469993/1-A	Lab Control Sample	87.0
MB 160-469993/23-A	Method Blank	86.4

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)
280-136112-1	MW-05	84.3	90.1
LCS 160-469995/1-A	Lab Control Sample	87.0	86.7
MB 160-469995/23-A	Method Blank	86.4	95.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-141888-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

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

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
12/21/2020 7:42:00 AM

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

LINKS

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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
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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

Job ID: 280-141888-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Report Number: 280-141888-1

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 10/22/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.1º C, 0.6º C, 0.6º C, 0.9º C, 1.3º C, 2.8º C and 3.5º C.

Please note, this report only contains results for sample MW-1P, MW-9, MW11, and MW-12. All other results are under job 280-141888-2 and 280-141888-3.

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

GENERAL CHEMISTRY
Samples MW-1P (280-141888-12), MW-9 (280-141888-13) and MW-11 (280-141888-14) required dilution prior to analysis for Method 9056A. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Method PrecSep-21: Radium 226 Prep Batch 160-487651: 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 PrecSep_0: Radium 228 Prep Batch 160-487652: 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
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Client Sample ID: MW-1P
Lab Sample ID: 280-141888-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0011	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.10		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00061	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.014		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0096		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	49		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.75		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	170		25	5.2	mg/L	5		9056A	Total/NA

Client Sample ID: MW-9
Lab Sample ID: 280-141888-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	11		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.039		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	110		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0058		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.10		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.032		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	69		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	450		25	5.2	mg/L	5		9056A	Total/NA

Client Sample ID: MW-11
Lab Sample ID: 280-141888-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.1		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0042	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.082		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	180		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.015		0.0010	0.00019	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.

Client Sample ID: MW-11 (Continued)
Lab Sample ID: 280-141888-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.00053	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.015		0.0080	0.0017	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	19.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	66		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	480		25	5.2	mg/L	5		9056A	Total/NA

Client Sample ID: MW-12
Lab Sample ID: 280-141888-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	7.1		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0073		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.18		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	84		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0066		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0080	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0047	J	0.0080	0.0017	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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	30		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.97		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	76		5.0	1.0	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	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
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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

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

Laboratory References:

TAL 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: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-141888-12	MW-1P	Water	10/21/20 16:10	10/22/20 14:18	
280-141888-13	MW-9	Water	10/21/20 14:45	10/22/20 14:18	
280-141888-14	MW-11	Water	10/22/20 10:50	10/22/20 14:18	
280-141888-15	MW-12	Water	10/22/20 09:10	10/22/20 14:18	

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

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.9**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:21	1

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**11**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:33	1

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.1**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:38	1

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**7.1**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:42	1

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

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/27/20 14:00	10/28/20 22:54	1
Arsenic	**0.0011**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:54	1
Barium	**0.10**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:54	1
Calcium	**130**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:54	1
Cadmium	ND		0.0010	0.00020	mg/L		10/27/20 14:00	10/28/20 22:54	1
Cobalt	**0.00061**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:54	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:54	1
Molybdenum	**0.014**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:54	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:54	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:54	1
Lithium	**0.0096**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:54	1

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/27/20 14:00	10/28/20 22:57	1
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:57	1
Barium	**0.039**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:57	1
Calcium	**110**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:57	1
Cadmium	ND		0.0010	0.00020	mg/L		10/27/20 14:00	10/28/20 22:57	1
Cobalt	**0.0058**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:57	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:57	1
Molybdenum	**0.10**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:57	1

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

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:57	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:57	1
Lithium	**0.032**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:57	1

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/27/20 14:00	10/28/20 22:59	1
Arsenic	**0.0042**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:59	1
Barium	**0.082**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:59	1
Calcium	**180**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:59	1
Cadmium	ND		0.0010	0.00020	mg/L		10/27/20 14:00	10/28/20 22:59	1
Cobalt	**0.015**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:59	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:59	1
Molybdenum	**0.015**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:59	1
Lead	**0.00053**	**J**	0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:59	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:59	1
Lithium	**0.015**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:59	1

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/27/20 14:00	10/28/20 23:07	1
Arsenic	**0.0073**		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:07	1
Barium	**0.18**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:07	1
Calcium	**84**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:07	1
Cadmium	ND		0.0010	0.00020	mg/L		10/27/20 14:00	10/28/20 23:07	1
Cobalt	**0.0066**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:07	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:07	1
Molybdenum	**0.0080**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:07	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:07	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:07	1
Lithium	**0.0047**	**J**	0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:07	1

General Chemistry

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.6**	**HF**	0.1	0.1	SU			10/29/20 21:00	1
Temperature	**22.0**	**HF**	1.0	1.0	Degrees C			10/29/20 21:00	1
Chloride	**49**		3.0	1.0	mg/L			11/15/20 15:58	1
Fluoride	**0.75**		0.50	0.17	mg/L			11/15/20 15:58	1
Sulfate	**170**		25	5.2	mg/L			11/15/20 16:14	5

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

General Chemistry

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			10/29/20 19:10	1
Temperature	20.5	HF	1.0	1.0	Degrees C			10/29/20 19:10	1
Chloride	69		3.0	1.0	mg/L			11/16/20 02:52	1
Fluoride	2.3		0.50	0.17	mg/L			11/16/20 02:52	1
Sulfate	450		25	5.2	mg/L			11/16/20 03:08	5

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			10/29/20 19:13	1
Temperature	19.6	HF	1.0	1.0	Degrees C			10/29/20 19:13	1
Chloride	66		3.0	1.0	mg/L			11/15/20 17:03	1
Fluoride	2.0		0.50	0.17	mg/L			11/15/20 17:03	1
Sulfate	480		25	5.2	mg/L			11/15/20 17:20	5

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
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			10/29/20 18:48	1
Temperature	20.8	HF	1.0	1.0	Degrees C			10/29/20 18:48	1
Chloride	30		3.0	1.0	mg/L			11/16/20 05:03	1
Fluoride	0.97		0.50	0.17	mg/L			11/16/20 05:03	1
Sulfate	76		5.0	1.0	mg/L			11/16/20 05:03	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.364		0.195	0.198	1.00	0.232	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.1*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:38*	*1*

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.140	U	0.165	0.165	1.00	0.267	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*60.1*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:38*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.201	U	0.161	0.162	1.00	0.231	pCi/L	10/29/20 15:29	12/04/20 16:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.7*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:39*	*1*

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0704	U	0.170	0.170	1.00	0.315	pCi/L	11/02/20 06:26	12/16/20 06:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.2*		*40 - 110*	*11/02/20 06:26*	*12/16/20 06:10*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.353	U	0.278	0.280	1.00	0.437	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.1*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*89.0*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.627**		0.354	0.358	1.00	0.522	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*60.1*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*87.5*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.199	U	0.312	0.313	1.00	0.527	pCi/L	10/30/20 08:51	12/03/20 12:35	1

Method: 9320 - Radium-228 (GFPC)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		40 - 110	10/30/20 08:51	12/03/20 12:35	1
Y Carrier	78.1		40 - 110	10/30/20 08:51	12/03/20 12:35	1

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0647	U	0.372	0.372	1.00	0.677	pCi/L	11/02/20 07:00	12/15/20 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	69.2		40 - 110	11/02/20 07:00	12/15/20 13:43	1
Y Carrier	69.2		40 - 110	11/02/20 07:00	12/15/20 13:43	1

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

Client Sample ID: MW-1P
Date Collected: 10/21/20 16:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.717**		0.340	0.343	5.00	0.437	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-9
Date Collected: 10/21/20 14:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.766**		0.391	0.394	5.00	0.522	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-11
Date Collected: 10/22/20 10:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.400	U	0.351	0.352	5.00	0.527	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-12
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.00579	U	0.409	0.409	5.00	0.677	pCi/L		12/20/20 20:20	1

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:00	1

Lab Sample ID: LCS 240-457900/2-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.991		mg/L		99	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		10/27/20 14:00	10/28/20 22:07	1
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:07	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:07	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:07	1
Cadmium	ND		0.0010	0.00020	mg/L		10/27/20 14:00	10/28/20 22:07	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:07	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:07	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:07	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:07	1

Lab Sample ID: LCS 240-457900/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0929		mg/L		93	80 - 120
Arsenic	1.00	0.982		mg/L		98	80 - 120
Barium	1.00	0.982		mg/L		98	80 - 120
Calcium	25.0	24.4		mg/L		98	80 - 120
Cadmium	0.500	0.475		mg/L		95	80 - 120
Cobalt	0.500	0.495		mg/L		99	80 - 120
Chromium	0.500	0.499		mg/L		100	80 - 120
Molybdenum	0.500	0.480		mg/L		96	80 - 120
Lead	0.500	0.488		mg/L		98	80 - 120
Selenium	1.00	0.952		mg/L		95	80 - 120
Lithium	0.500	0.476		mg/L		95	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-514856/30
Matrix: Water
Analysis Batch: 514856

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		101	99 - 101		

Lab Sample ID: LCS 280-514856/4
Matrix: Water
Analysis Batch: 514856

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

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

Lab Sample ID: 280-141888-15 DU
Matrix: Water
Analysis Batch: 514856

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH adj. to 25 deg C	7.4	HF		7.4		SU				0.1	5
Temperature	20.8	HF		19.5		Degrees C				7	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-516788/6
Matrix: Water
Analysis Batch: 516788

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/15/20 11:40	1
Fluoride	ND		0.50	0.17	mg/L			11/15/20 11:40	1
Sulfate	ND		5.0	1.0	mg/L			11/15/20 11:40	1

Lab Sample ID: LCS 280-516788/4
Matrix: Water
Analysis Batch: 516788

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	100		mg/L		100	90 - 110		
Fluoride			5.00	5.52		mg/L		110	90 - 110		
Sulfate			100	97.2		mg/L		97	90 - 110		

Lab Sample ID: LCSD 280-516788/5
Matrix: Water
Analysis Batch: 516788

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	99.4		mg/L		99	90 - 110	1	10
Fluoride			5.00	5.52		mg/L		110	90 - 110	0	10
Sulfate			100	97.0		mg/L		97	90 - 110	0	10

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

Lab Sample ID: MRL 280-516788/3
Matrix: Water
Analysis Batch: 516788

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	4.17		mg/L		83	50 - 150
Fluoride	0.500	0.570		mg/L		114	50 - 150
Sulfate	5.00	4.51	J	mg/L		90	50 - 150

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-487286/23-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487286

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09006	U	0.116	0.117	1.00	0.193	pCi/L	10/29/20 15:29	12/04/20 16:39	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:39*	*1*

Lab Sample ID: LCS 160-487286/1-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487286

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	11.43		1.42	1.00	0.227	pCi/L	101	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*82.4*		*40 - 110*

Lab Sample ID: MB 160-487651/23-A
Matrix: Water
Analysis Batch: 491983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487651

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1130	U	0.158	0.159	1.00	0.268	pCi/L	11/02/20 06:26	12/16/20 08:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.4*		*40 - 110*	*11/02/20 06:26*	*12/16/20 08:02*	*1*

Lab Sample ID: LCS 160-487651/1-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487651

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	9.830		1.17	1.00	0.206	pCi/L	87	75 - 125

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

Lab Sample ID: LCS 160-487651/1-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487651

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	76.5		40 - 110

Lab Sample ID: LCSD 160-487651/2-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487651

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.65		1.29	1.00	0.252	pCi/L	94	75 - 125	0.34	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	64.2		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-487309/23-A
Matrix: Water
Analysis Batch: 490765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487309

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2676	U	0.300	0.301	1.00	0.493	pCi/L	10/30/20 08:51	12/03/20 12:36	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110	10/30/20 08:51	12/03/20 12:36	1
Y Carrier	81.5		40 - 110	10/30/20 08:51	12/03/20 12:36	1

Lab Sample ID: LCS 160-487309/1-A
Matrix: Water
Analysis Batch: 490847

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487309

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.61	7.944		0.985	1.00	0.430	pCi/L	104	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	82.4		40 - 110
Y Carrier	89.0		40 - 110

Lab Sample ID: MB 160-487652/23-A
Matrix: Water
Analysis Batch: 491763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487652

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1893	U	0.347	0.347	1.00	0.648	pCi/L	11/02/20 07:00	12/15/20 13:50	1

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

Lab Sample ID: MB 160-487652/23-A
Matrix: Water
Analysis Batch: 491763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487652

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110	11/02/20 07:00	12/15/20 13:50	1
Y Carrier	76.3		40 - 110	11/02/20 07:00	12/15/20 13:50	1

Lab Sample ID: LCS 160-487652/1-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.58	6.993		0.948	1.00	0.496	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	76.5		40 - 110
Y Carrier	78.5		40 - 110

Lab Sample ID: LCSD 160-487652/2-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.58	7.860		1.12	1.00	0.717	pCi/L	104	75 - 125	0.42	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	64.2		40 - 110
Y Carrier	74.4		40 - 110

QC Association Summary

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Metals

Prep Batch: 457900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total Recoverable	Water	3005A	
280-141888-13	MW-9	Total Recoverable	Water	3005A	
280-141888-14	MW-11	Total Recoverable	Water	3005A	
280-141888-15	MW-12	Total Recoverable	Water	3005A	
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 458130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total Recoverable	Water	6010C	457900
280-141888-13	MW-9	Total Recoverable	Water	6010C	457900
280-141888-14	MW-11	Total Recoverable	Water	6010C	457900
280-141888-15	MW-12	Total Recoverable	Water	6010C	457900
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6010C	457900
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	6010C	457900

Analysis Batch: 458287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total Recoverable	Water	6020A	457900
280-141888-13	MW-9	Total Recoverable	Water	6020A	457900
280-141888-14	MW-11	Total Recoverable	Water	6020A	457900
280-141888-15	MW-12	Total Recoverable	Water	6020A	457900
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6020A	457900
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	6020A	457900

General Chemistry

Analysis Batch: 514856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total/NA	Water	9040B	
280-141888-13	MW-9	Total/NA	Water	9040B	
280-141888-14	MW-11	Total/NA	Water	9040B	
280-141888-15	MW-12	Total/NA	Water	9040B	
LCS 280-514856/30	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-514856/4	Lab Control Sample	Total/NA	Water	9040B	
280-141888-15 DU	MW-12	Total/NA	Water	9040B	

Analysis Batch: 516788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total/NA	Water	9056A	
280-141888-12	MW-1P	Total/NA	Water	9056A	
280-141888-13	MW-9	Total/NA	Water	9056A	
280-141888-13	MW-9	Total/NA	Water	9056A	
280-141888-14	MW-11	Total/NA	Water	9056A	
280-141888-14	MW-11	Total/NA	Water	9056A	
280-141888-15	MW-12	Total/NA	Water	9056A	
MB 280-516788/6	Method Blank	Total/NA	Water	9056A	
LCS 280-516788/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-516788/5	Lab Control Sample Dup	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 516788 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 280-516788/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 487286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total/NA	Water	PrecSep-21	
280-141888-13	MW-9	Total/NA	Water	PrecSep-21	
280-141888-14	MW-11	Total/NA	Water	PrecSep-21	
MB 160-487286/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487286/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 487309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-12	MW-1P	Total/NA	Water	PrecSep_0	
280-141888-13	MW-9	Total/NA	Water	PrecSep_0	
280-141888-14	MW-11	Total/NA	Water	PrecSep_0	
MB 160-487309/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487309/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 487651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-15	MW-12	Total/NA	Water	PrecSep-21	
MB 160-487651/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487651/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487651/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-15	MW-12	Total/NA	Water	PrecSep_0	
MB 160-487652/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487652/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487652/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Client Sample ID: MW-1P
Lab Sample ID: 280-141888-12
Date Collected: 10/21/20 16:10
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:21	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:54	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 21:00	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 15:58	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/15/20 16:14	CJ	TAL DEN
Total/NA	Prep	PrecSep-21			1000.35 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.35 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-9
Lab Sample ID: 280-141888-13
Date Collected: 10/21/20 14:45
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:33	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:57	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:10	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 02:52	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/16/20 03:08	CJ	TAL DEN
Total/NA	Prep	PrecSep-21			999.82 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.82 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-11
Lab Sample ID: 280-141888-14
Date Collected: 10/22/20 10:50
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:38	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:59	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:13	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 17:03	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/15/20 17:20	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Client Sample ID: MW-11
Lab Sample ID: 280-141888-14
Date Collected: 10/22/20 10:50
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.37 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:39	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.37 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:35	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-12
Lab Sample ID: 280-141888-15
Date Collected: 10/22/20 09:10
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:42	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:07	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 18:48	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 05:03	CJ	TAL DEN
Total/NA	Prep	PrecSep-21			999.41 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 06:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.41 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491762	12/15/20 13:43	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492490	12/20/20 20:20	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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	06-30-21
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	06-05-21
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
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Mentor	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.2
Client Contact: Molly Reeves	Phone: 720 273 3436	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 2 of 3
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:	Analysis Requested		
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: COLORADO Ash Ponds + Landfill	SSOW#:			

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A Total Metals - ETA Canton No Be, Hg, Tl	2540C_Calcd TDS/ Method 300.0 Chloride/Fluoride/Sulfate/ pH	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis	6010C/6020A: No Sb, Cd, Hg, Metals, No Sb, Be, Cd, Hg, Tl	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D			
MW-1P	10/21/20	1610	G	Water			1	2	2		5	Ash Ponds: App III + IV w/o Be, Hg, Tl
MW-9	10/21/20	1445	G	Water			1	2	2		5	
MW-11	10/22/20	1050	G	Water			1	2	2		5	
MW-12	10/22/20	0910	G	Water			1	2	2		5	
MW-12D	10/22/20	0910	G	W			1	2	2		5	
MW-13	10/19/20	1510	G	W				2	2	1	5	Landfill: Metals App III + IV w/o Sb, Be, Cd, Hg, Tl
MW-14	10/21/20	1245	G	W				2	2	1	5	
MW-15	10/20/20	1500	G	W				2	2	1	5	
MW-16	10/20/20	0935	G	W				2	2	1	5	
MW-21	10/20/20	1000	G	W				2	2	1	5	
MW-25	10/21/20	1320	G	W				2	2	1	5	

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/22/20 1418	HDR	Laurence Chang	10/22/20 1418	EUROFINS
2						
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-25EB (280-141888-5)	10/21/20	13:50 Mountain		Water			X	X	X	2	
MW-26 (280-141888-6)	10/20/20	12:20 Mountain		Water			X	X	X	2	
MW-27 (280-141888-7)	10/19/20	16:30 Mountain		Water			X	X	X	2	
MW-28 (280-141888-8)	10/20/20	16:50 Mountain		Water			X	X	X	2	
MW-1 (280-141888-9)	10/20/20	13:05 Mountain		Water			X	X	X	2	
MW-3 (280-141888-10)	10/20/20	16:30 Mountain		Water			X	X	X	2	
MW-4 (280-141888-11)	10/21/20	08:00 Mountain		Water			X	X	X	2	
MW-1P (280-141888-12)	10/21/20	16:10 Mountain		Water			X	X	X	2	
MW-9 (280-141888-13)	10/21/20	14:45 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/23/2020 1400		FedEx		
2	FedEx			[signature]	10/24/20 08:35	ETASTL
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-11 (280-141888-14)	10/22/20	10:50 Mountain		Water			X	X	X	2	
MW-12 (280-141888-15)	10/22/20	09:10 Mountain		Water			X	X	X	2	
MW-12D (280-141888-16)	10/22/20	09:10 Mountain		Water			X	X	X	2	
MW-13 (280-141888-17)	10/19/20	15:10 Mountain		Water			X	X	X	2	
MW-14 (280-141888-18)	10/21/20	12:45 Mountain		Water			X	X	X	2	
MW-15 (280-141888-19)	10/20/20	15:00 Mountain		Water			X	X	X	2	
MW-16 (280-141888-20)	10/20/20	09:35 Mountain		Water			X	X	X	2	
MW-21 (280-141888-21)	10/20/20	10:00 Mountain		Water			X	X	X	2	
MW-25 (280-141888-22)	10/21/20	13:20 Mountain		Water			X	X	X	2	

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

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/23/2020 1400		FedEx		
Relinquished by: FedEx	Date/Time:	Company	Received by:	Date/Time: 10/24/20 08:35	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-6 (280-141888-23)	10/21/20	10:35 Mountain		Water			X	X	X	2	
MW-7 (280-141888-24)	10/20/20	14:20 Mountain		Water			X	X	X	2	
MW-8 (280-141888-25)	10/21/20	09:20 Mountain		Water			X	X	X	2	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/23/2020 1400		FedEx		
Relinquished by: FedEx	Date/Time:	Company	Received by:	Date/Time: 10/24/20 08:35	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544248.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 4101 Shuffel Street NW, .	Due Date Requested: 11/13/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S81

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-1P (280-141888-12)	10/21/20	16:10 Mountain		Water			X	X	2	Use Collision Cell
MW-9 (280-141888-13)	10/21/20	14:45 Mountain		Water			X	X	2	Use Collision Cell
MW-11 (280-141888-14)	10/22/20	10:50 Mountain		Water			X	X	2	Use Collision Cell
MW-12 (280-141888-15)	10/22/20	09:10 Mountain		Water			X	X	2	Use Collision Cell

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

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/23/2020 1330		Received by:	10-24-20 940	TestAmerica
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-1

Login Number: 141888
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-1

Login Number: 141888
List Number: 3
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/24/20 12:26 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-141888-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
280-141888-12	MW-1P	75.1
280-141888-13	MW-9	60.1
280-141888-14	MW-11	75.7
280-141888-15	MW-12	69.2
LCS 160-487286/1-A	Lab Control Sample	82.4
LCS 160-487651/1-A	Lab Control Sample	76.5
LCSD 160-487651/2-A	Lab Control Sample Dup	64.2
MB 160-487286/23-A	Method Blank	85.3
MB 160-487651/23-A	Method Blank	72.4

Tracer/Carrier Legend

Ba = Ba 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)
280-141888-12	MW-1P	75.1	89.0
280-141888-13	MW-9	60.1	87.5
280-141888-14	MW-11	75.7	78.1
280-141888-15	MW-12	69.2	69.2
LCS 160-487309/1-A	Lab Control Sample	82.4	89.0
LCS 160-487652/1-A	Lab Control Sample	76.5	78.5
LCSD 160-487652/2-A	Lab Control Sample Dup	64.2	74.4
MB 160-487309/23-A	Method Blank	85.3	81.5
MB 160-487652/23-A	Method Blank	72.4	76.3

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

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

Laboratory Job ID: 280-141888-2
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

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

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
12/30/2020 5:13:33 PM

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

LINKS

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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
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

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

Glossary

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

Job ID: 280-141888-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont Landfill

Report Number: 280-141888-2

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

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

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

RECEIPT
The samples were received on 10/22/2020; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the coolers at receipt time were 0.1º C, 0.6º C, 0.6º C, 0.9º C, 1.3º C, 2.8º C and 3.5º C.

Please note, MW-8 and MW-5 have containers that aren't completely full. Samples MW-8 1L Plastic HNO3 (500ml) and for sample MW-5 500ml Plastic HNO3 (250ml). Sufficient volume was received for requested analyses.

Please note, this report does not contains results for sample MW-1P, MW-9, MW11, MW-17, MW-17D, MW-18, MW-19B, MW-20, and MW-12. The results for those samples are under jobs 280-141888-1 and 280-141888-3.

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

GENERAL CHEMISTRY- VARIOUS
Several samples required a dilution or prepped at a dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

Due to a required dilution, sample MW-13, MW-21, and MW-3 was analyzed past the EPA-recommended holding time for method 9056A Sulfate; the original analysis of the undiluted sample was performed within holding time. The out-of-hold, diluted result is confirmed by the undiluted result; only the diluted result has been reported. There is no impact on data usability. Both results are reported.

MS/MSD analyses were performed on sample MW-13. The MS/MSD for Sulfate method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The CCB for analytical batch 280-517201 contained Sulfate above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the CCB.

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

RADIUM-226 (GFPC)- METHOD 9315
Radium-226 exceeded the RPD limit for the duplicate of sample 160-40101-1. Refer to the QC report for details.

Job ID: 280-141888-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

Insufficient sample volume was available to perform a sample duplicate for prep batch 160-487651. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Sample MW-18 was prepared at a reduced aliquot due to yellow discoloration. Sample MW-4 was prepared at a reduced aliquot due to a cloudy appearance.

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

RADIUM-228- METHOD 9320

Insufficient sample volume was available to perform a sample duplicate for prep batch 160-487652. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Sample MW-18 was prepared at a reduced aliquot due to yellow discoloration. Sample MW-4 was prepared at a reduced aliquot due to a cloudy appearance.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-25EB
Lab Sample ID: 280-141888-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	1.4	J	5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	30		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-26
Lab Sample ID: 280-141888-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.74		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.013		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	490		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00037	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Selenium	0.0040	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.072		0.0080	0.0017	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	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	4.5		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1900		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	3500		33	16	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-27
Lab Sample ID: 280-141888-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.095	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.075		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	46		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00037	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0051		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0028	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00067	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0033	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.026		0.0080	0.0017	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	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	15		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.81		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	39		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	410		10	4.7	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-28
Lab Sample ID: 280-141888-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.023		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.013		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	510		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00061	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0018	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	2.7		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.23		0.0080	0.0017	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	19.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	60		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	3000		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	7400		100	47	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-1
Lab Sample ID: 280-141888-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.36		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00097	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.040		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	83		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00054	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0014	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0068	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.027		0.0080	0.0017	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	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	61		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.28	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	270		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	970		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-3
Lab Sample ID: 280-141888-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.5		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.012		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-3 (Continued) — Lab Sample ID: 280-141888-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	480		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00069	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Selenium	0.00099	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.075		0.0080	0.0017	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	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	41		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	5.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1400	E	25	5.2	mg/L	5		9056A	Total/NA
Sulfate	2200	H	100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	4200		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 280-141888-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0068		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.17		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	390		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.014		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.014		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.017		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.21		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.22		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	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	420		60	20	mg/L	20		9056A	Total/NA
Fluoride	2.9		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5500		250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	10000		100	47	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 280-141888-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	6.9		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0073		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.18		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-12D (Continued) — Lab Sample ID: 280-141888-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	81		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0065		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0078	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0040	J	0.0080	0.0017	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	19.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	30		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.96		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	76		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	610		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 280-141888-17

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
Arsenic	0.0043	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.022		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	500		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00080	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0024		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0037	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.32		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.093		0.0080	0.0017	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	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	60		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.49	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2100	E	50	10	mg/L	10		9056A	Total/NA
Sulfate	1900	H F1	100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	4000		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 280-141888-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.012		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.016		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	450		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-14 (Continued) — Lab Sample ID: 280-141888-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00047	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0019	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	1.4		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.13		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	160		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3000		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	5900		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 280-141888-19

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
Arsenic	0.0012	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.019		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	200		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00027	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0023		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0033	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.11		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.047		0.0080	0.0017	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	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	78		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1200		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2600		25	12	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 280-141888-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.48		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00091	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.047		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-16 (Continued)
Lab Sample ID: 280-141888-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	47		1.0	0.58	mg/L	1		6020A	Total Recoverable
Molybdenum	0.026		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.043		0.0080	0.0017	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	22.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	57		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	180		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	750		17	7.8	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-21
Lab Sample ID: 280-141888-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.012		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.017		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	470		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00052	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0060	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	1.2		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.19		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	370		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.63		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3400	E	50	10	mg/L	10		9056A	Total/NA
Sulfate	2400	H	250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	5800		67	31	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-25
Lab Sample ID: 280-141888-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.51		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0016	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00043	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.050		0.010	0.0011	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-25 (Continued) — Lab Sample ID: 280-141888-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.0053		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.046		0.0080	0.0017	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	19.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	85		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.35	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	560		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 280-141888-23

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
Arsenic	0.0063		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.18		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	370		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0098		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0020	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.023		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.017		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.081		0.0080	0.0017	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	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	650		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	640		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2300		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 280-141888-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.21		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.018		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	51		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00034	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0030	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0044	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-7 (Continued)
Lab Sample ID: 280-141888-24

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
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	46		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.47	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	77		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	570		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-8
Lab Sample ID: 280-141888-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.95		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	0.10		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	500		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.012		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0018	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.013		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0087		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.15		0.0080	0.0017	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	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		30	10	mg/L	10		9056A	Total/NA
Fluoride	9.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2900		250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	5400		40	19	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-5
Lab Sample ID: 280-141888-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.8		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00096	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.051		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	88		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0019		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0088		0.0020	0.00098	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-5 (Continued)
Lab Sample ID: 280-141888-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0028	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0041		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0038	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.069		0.0080	0.0017	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-141888-5	MW-25EB	Water	10/21/20 13:50	10/22/20 14:18	
280-141888-6	MW-26	Water	10/20/20 12:20	10/22/20 14:18	
280-141888-7	MW-27	Water	10/19/20 16:30	10/22/20 14:18	
280-141888-8	MW-28	Water	10/20/20 16:50	10/22/20 14:18	
280-141888-9	MW-1	Water	10/20/20 13:05	10/22/20 14:18	
280-141888-10	MW-3	Water	10/20/20 16:30	10/22/20 14:18	
280-141888-11	MW-4	Water	10/21/20 08:00	10/22/20 14:18	
280-141888-16	MW-12D	Water	10/22/20 09:10	10/22/20 14:18	
280-141888-17	MW-13	Water	10/19/20 15:10	10/22/20 14:18	
280-141888-18	MW-14	Water	10/21/20 12:45	10/22/20 14:18	
280-141888-19	MW-15	Water	10/20/20 15:00	10/22/20 14:18	
280-141888-20	MW-16	Water	10/20/20 09:35	10/22/20 14:18	
280-141888-21	MW-21	Water	10/20/20 10:00	10/22/20 14:18	
280-141888-22	MW-25	Water	10/21/20 13:20	10/22/20 14:18	
280-141888-23	MW-6	Water	10/21/20 10:35	10/22/20 14:18	
280-141888-24	MW-7	Water	10/20/20 14:20	10/22/20 14:18	
280-141888-25	MW-8	Water	10/21/20 09:20	10/22/20 14:18	
280-141888-27	MW-5	Water	10/22/20 11:35	10/22/20 14:18	

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

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:50	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.74		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:54	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.095	J	0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:59	1

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:03	1

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.36		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:08	1

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.5		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:12	1

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:16	1

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	6.9		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:46	1

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:51	1

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

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 19:55	1

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.59		0.10	0.023	mg/L		10/27/20 14:00	10/29/20 05:51	1

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.48		0.10	0.023	mg/L		10/27/20 14:00	10/29/20 05:55	1

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:21	1

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.51		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:25	1

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:30	1

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.21		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:34	1

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.95		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:39	1

Client Sample ID: MW-5
Date Collected: 10/22/20 11:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:56	1

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

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:36	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:36	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:36	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:36	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:36	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:36	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:36	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:36	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:36	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:39	1
Barium	0.013		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:39	1
Calcium	490		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:39	1
Cobalt	0.00037	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:39	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:39	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:39	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:39	1
Selenium	0.0040	J	0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:39	1
Lithium	0.072		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:39	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:41	1
Barium	0.075		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:41	1
Calcium	46		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:41	1
Cobalt	0.00037	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:41	1
Chromium	0.0051		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:41	1
Molybdenum	0.0028	J	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:41	1
Lead	0.00067	J	0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:41	1
Selenium	0.0033	J	0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:41	1
Lithium	0.026		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:41	1

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.023		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:44	1
Barium	0.013		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:44	1
Calcium	510		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:44	1
Cobalt	0.00061	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:44	1
Chromium	0.0018	J	0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:44	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:44	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:44	1

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

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	**2.7**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:44	1
Lithium	**0.23**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:44	1

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00097**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:47	1
Barium	**0.040**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:47	1
Calcium	**83**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:47	1
Cobalt	**0.00054**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:47	1
Chromium	**0.0014**	**J**	0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:47	1
Molybdenum	**0.0068**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:47	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:47	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:47	1
Lithium	**0.027**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:47	1

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:49	1
Barium	**0.012**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:49	1
Calcium	**480**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:49	1
Cobalt	**0.00069**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:49	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:49	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:49	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:49	1
Selenium	**0.00099**	**J**	0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:49	1
Lithium	**0.075**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:49	1

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0068**		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:52	1
Barium	**0.17**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:52	1
Calcium	**390**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:52	1
Cobalt	**0.014**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:52	1
Chromium	**0.027**		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:52	1
Molybdenum	**0.014**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:52	1
Lead	**0.017**		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:52	1
Selenium	**0.21**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:52	1
Lithium	**0.22**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:52	1

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

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0073		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:09	1
Barium	0.18		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:09	1
Calcium	81		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:09	1
Cobalt	0.0065		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:09	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:09	1
Molybdenum	0.0078	J	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:09	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:09	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:09	1
Lithium	0.0040	J	0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:09	1

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0043	J	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:12	1
Barium	0.022		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:12	1
Calcium	500		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:12	1
Cobalt	0.00080	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:12	1
Chromium	0.0024		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:12	1
Molybdenum	0.0037	J	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:12	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:12	1
Selenium	0.32		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:12	1
Lithium	0.093		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:12	1

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:14	1
Barium	0.016		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:14	1
Calcium	450		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:14	1
Cobalt	0.00047	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:14	1
Chromium	0.0015	J	0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:14	1
Molybdenum	0.0019	J	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:14	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:14	1
Selenium	1.4		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:14	1
Lithium	0.13		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:14	1

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0012	J	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:17	1
Barium	0.019		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:17	1
Calcium	200		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:17	1
Cobalt	0.00027	J	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:17	1
Chromium	0.0023		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:17	1
Molybdenum	0.0033	J	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:17	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:17	1

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

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	**0.11**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:17	1
Lithium	**0.047**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:17	1

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00091**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 23:19	1
Barium	**0.047**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 23:19	1
Calcium	**47**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 23:19	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 23:19	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 23:19	1
Molybdenum	**0.026**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 23:19	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 23:19	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 23:19	1
Lithium	**0.043**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 23:19	1

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.012**		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:23	1
Barium	**0.017**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:23	1
Calcium	**470**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:23	1
Cobalt	**0.00052**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:23	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:23	1
Molybdenum	**0.0060**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:23	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:23	1
Selenium	**1.2**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:23	1
Lithium	**0.19**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:23	1

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0016**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:26	1
Barium	**0.020**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:26	1
Calcium	**130**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:26	1
Cobalt	**0.00043**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:26	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:26	1
Molybdenum	**0.050**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:26	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:26	1
Selenium	**0.0053**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:26	1
Lithium	**0.046**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:26	1

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

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0063**		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:28	1
Barium	**0.18**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:28	1
Calcium	**370**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:28	1
Cobalt	**0.0098**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:28	1
Chromium	**0.027**		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:28	1
Molybdenum	**0.0020**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:28	1
Lead	**0.023**		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:28	1
Selenium	**0.017**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:28	1
Lithium	**0.081**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:28	1

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:31	1
Barium	**0.018**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:31	1
Calcium	**51**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:31	1
Cobalt	**0.00034**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:31	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:31	1
Molybdenum	**0.0030**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:31	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:31	1
Selenium	**0.0044**	**J**	0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:31	1
Lithium	**0.034**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:31	1

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0039**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:38	1
Barium	**0.10**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:38	1
Calcium	**500**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:38	1
Cobalt	**0.012**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:38	1
Chromium	**0.027**		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:38	1
Molybdenum	**0.0018**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:38	1
Lead	**0.013**		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:38	1
Selenium	**0.0087**		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:38	1
Lithium	**0.15**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:38	1

Client Sample ID: MW-5
Date Collected: 10/22/20 11:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00096**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:43	1
Barium	**0.051**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:43	1
Calcium	**88**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:43	1
Cobalt	**0.0019**		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:43	1
Chromium	**0.0088**		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:43	1
Molybdenum	**0.0028**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:43	1
Lead	**0.0041**		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:43	1

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

Client Sample ID: MW-5
Date Collected: 10/22/20 11:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	0.0038	J	0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 20:43	1
Lithium	0.069		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:43	1

General Chemistry

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.4	HF	0.1	0.1	SU			11/10/20 23:07	1
Temperature	22.6	HF	1.0	1.0	Degrees C			11/10/20 23:07	1
Chloride	ND		3.0	1.0	mg/L			11/15/20 20:18	1
Fluoride	ND		0.50	0.17	mg/L			11/15/20 20:18	1
Sulfate	1.4	J	5.0	1.0	mg/L			11/15/20 20:18	1
Total Dissolved Solids (TDS)	30		20	9.4	mg/L			10/28/20 11:41	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			10/29/20 20:45	1
Temperature	22.6	HF	1.0	1.0	Degrees C			10/29/20 20:45	1
Chloride	180		3.0	1.0	mg/L			11/16/20 11:43	1
Fluoride	4.5		0.50	0.17	mg/L			11/16/20 11:43	1
Sulfate	1900		100	21	mg/L			11/16/20 11:59	20
Total Dissolved Solids (TDS)	3500		33	16	mg/L			10/27/20 18:02	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
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			10/29/20 19:06	1
Temperature	19.8	HF	1.0	1.0	Degrees C			10/29/20 19:06	1
Chloride	15		3.0	1.0	mg/L			11/16/20 03:24	1
Fluoride	0.81		0.50	0.17	mg/L			11/16/20 03:24	1
Sulfate	39		5.0	1.0	mg/L			11/16/20 03:24	1
Total Dissolved Solids (TDS)	410		10	4.7	mg/L			10/26/20 18:23	1

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
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			10/29/20 19:20	1
Temperature	19.1	HF	1.0	1.0	Degrees C			10/29/20 19:20	1
Chloride	60		3.0	1.0	mg/L			11/16/20 13:21	1
Fluoride	ND		2.5	0.83	mg/L			11/17/20 22:35	5
Sulfate	3000		100	21	mg/L			11/16/20 13:38	20
Total Dissolved Solids (TDS)	7400		100	47	mg/L			10/27/20 18:02	1

General Chemistry

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			10/29/20 21:08	1
Temperature	22.5	HF	1.0	1.0	Degrees C			10/29/20 21:08	1
Chloride	61		3.0	1.0	mg/L			11/16/20 01:46	1
Fluoride	0.28	J	0.50	0.17	mg/L			11/16/20 01:46	1
Sulfate	270		25	5.2	mg/L			11/16/20 02:02	5
Total Dissolved Solids (TDS)	970		20	9.4	mg/L			10/27/20 18:02	1

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
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			10/29/20 20:56	1
Temperature	21.4	HF	1.0	1.0	Degrees C			10/29/20 20:56	1
Chloride	41		3.0	1.0	mg/L			11/15/20 22:29	1
Fluoride	5.2		0.50	0.17	mg/L			11/15/20 22:29	1
Sulfate	1400	E	25	5.2	mg/L			11/15/20 22:46	5
Sulfate	2200	H	100	21	mg/L			11/18/20 23:39	20
Total Dissolved Solids (TDS)	4200		40	19	mg/L			10/27/20 18:02	1

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			10/29/20 20:52	1
Temperature	21.4	HF	1.0	1.0	Degrees C			10/29/20 20:52	1
Chloride	420		60	20	mg/L			11/15/20 21:40	20
Fluoride	2.9		0.50	0.17	mg/L			11/15/20 21:23	1
Sulfate	5500		250	52	mg/L			11/17/20 23:07	50
Total Dissolved Solids (TDS)	10000		100	47	mg/L			10/28/20 11:41	1

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
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			10/29/20 19:49	1
Temperature	19.6	HF	1.0	1.0	Degrees C			10/29/20 19:49	1
Chloride	30		3.0	1.0	mg/L			11/16/20 15:16	1
Fluoride	0.96		0.50	0.17	mg/L			11/16/20 15:16	1
Sulfate	76		5.0	1.0	mg/L			11/16/20 15:16	1
Total Dissolved Solids (TDS)	610		10	4.7	mg/L			10/29/20 21:24	1

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
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			10/29/20 19:02	1
Temperature	19.8	HF	1.0	1.0	Degrees C			10/29/20 19:02	1
Chloride	60		3.0	1.0	mg/L			11/16/20 14:43	1
Fluoride	0.49	J	0.50	0.17	mg/L			11/16/20 14:43	1

General Chemistry (Continued)

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2100	E	50	10	mg/L			11/16/20 15:00	10
Sulfate	1900	H F1	100	21	mg/L			11/18/20 01:02	20
Total Dissolved Solids (TDS)	4000		40	19	mg/L			10/26/20 18:23	1

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			10/29/20 18:56	1
Temperature	19.8	HF	1.0	1.0	Degrees C			10/29/20 18:56	1
Chloride	160		60	20	mg/L			11/16/20 12:32	20
Fluoride	0.45	J	0.50	0.17	mg/L			11/16/20 12:16	1
Sulfate	3000		100	21	mg/L			11/16/20 12:32	20
Total Dissolved Solids (TDS)	5900		40	19	mg/L			10/28/20 13:43	1

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
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			10/29/20 20:20	1
Temperature	21.6	HF	1.0	1.0	Degrees C			10/29/20 20:20	1
Chloride	78		3.0	1.0	mg/L			11/16/20 12:48	1
Fluoride	0.45	J	0.50	0.17	mg/L			11/16/20 12:48	1
Sulfate	1200		50	10	mg/L			11/16/20 13:05	10
Total Dissolved Solids (TDS)	2600		25	12	mg/L			10/27/20 18:02	1

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			10/29/20 21:04	1
Temperature	22.2	HF	1.0	1.0	Degrees C			10/29/20 21:04	1
Chloride	57		3.0	1.0	mg/L			11/15/20 17:36	1
Fluoride	1.4		0.50	0.17	mg/L			11/15/20 17:36	1
Sulfate	180		25	5.2	mg/L			11/15/20 19:14	5
Total Dissolved Solids (TDS)	750		17	7.8	mg/L			10/27/20 18:02	1

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			10/29/20 19:56	1
Temperature	20.4	HF	1.0	1.0	Degrees C			10/29/20 19:56	1
Chloride	370		30	10	mg/L			11/16/20 16:38	10
Fluoride	0.63		0.50	0.17	mg/L			11/16/20 16:22	1
Sulfate	3400	E	50	10	mg/L			11/16/20 16:38	10
Sulfate	2400	H	250	52	mg/L			11/18/20 04:19	50
Total Dissolved Solids (TDS)	5800		67	31	mg/L			10/27/20 18:02	1

General Chemistry

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
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			10/29/20 19:24	1
Temperature	19.5	HF	1.0	1.0	Degrees C			10/29/20 19:24	1
Chloride	85		3.0	1.0	mg/L			11/16/20 00:08	1
Fluoride	0.35	J	0.50	0.17	mg/L			11/16/20 00:08	1
Sulfate	560		25	5.2	mg/L			11/16/20 00:24	5
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L			10/28/20 11:41	1

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
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			10/29/20 19:45	1
Temperature	20.3	HF	1.0	1.0	Degrees C			10/29/20 19:45	1
Chloride	650		15	5.1	mg/L			11/15/20 23:51	5
Fluoride	ND		0.50	0.17	mg/L			11/15/20 23:35	1
Sulfate	640		25	5.2	mg/L			11/15/20 23:51	5
Total Dissolved Solids (TDS)	2300		40	19	mg/L			10/28/20 11:41	1

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			11/10/20 23:11	1
Temperature	22.2	HF	1.0	1.0	Degrees C			11/10/20 23:11	1
Chloride	46		3.0	1.0	mg/L			11/15/20 20:51	1
Fluoride	0.47	J	0.50	0.17	mg/L			11/15/20 20:51	1
Sulfate	77		5.0	1.0	mg/L			11/15/20 20:51	1
Total Dissolved Solids (TDS)	570		10	4.7	mg/L			10/27/20 18:02	1

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
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			11/10/20 23:15	1
Temperature	21.7	HF	1.0	1.0	Degrees C			11/10/20 23:15	1
Chloride	270		30	10	mg/L			11/15/20 16:47	10
Fluoride	9.0		0.50	0.17	mg/L			11/15/20 16:30	1
Sulfate	2900		250	52	mg/L			11/18/20 11:54	50
Total Dissolved Solids (TDS)	5400		40	19	mg/L			10/28/20 13:43	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00339	U	0.107	0.107	1.00	0.228	pCi/L	10/29/20 15:29	12/04/20 14:49	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		40 - 110	10/29/20 15:29	12/04/20 14:49	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.471		0.212	0.216	1.00	0.220	pCi/L	10/29/20 15:29	12/04/20 16:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	73.0		40 - 110	10/29/20 15:29	12/04/20 16:37	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.112	U	0.130	0.130	1.00	0.210	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110	10/29/20 15:29	12/04/20 16:38	1

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.491		0.242	0.246	1.00	0.272	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110	10/29/20 15:29	12/04/20 16:38	1

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.194	U	0.192	0.193	1.00	0.300	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	65.7		40 - 110	10/29/20 15:29	12/04/20 16:38	1

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.275	U	0.198	0.200	1.00	0.287	pCi/L	10/29/20 15:29	12/04/20 16:38	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.9		40 - 110	10/29/20 15:29	12/04/20 16:38	1

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.578**		0.345	0.349	1.00	0.451	pCi/L	10/29/20 15:29	12/04/20 16:38	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.7		40 - 110	10/29/20 15:29	12/04/20 16:38	1

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.139	U	0.188	0.188	1.00	0.315	pCi/L	11/02/20 06:26	12/16/20 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	73.0		40 - 110	11/02/20 06:26	12/16/20 06:10	1

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.171	U	0.210	0.211	1.00	0.347	pCi/L	11/02/20 06:26	12/16/20 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110	11/02/20 06:26	12/16/20 06:10	1

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.395**		0.230	0.232	1.00	0.295	pCi/L	11/02/20 06:26	12/16/20 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.9		40 - 110	11/02/20 06:26	12/16/20 06:10	1

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.221	U	0.197	0.198	1.00	0.300	pCi/L	11/02/20 06:26	12/16/20 06:10	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.1		40 - 110	11/02/20 06:26	12/16/20 06:10	1

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.222	U	0.201	0.202	1.00	0.304	pCi/L	11/02/20 06:26	12/16/20 07:59	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	69.5		40 - 110	11/02/20 06:26	12/16/20 07:59	1

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.346**		0.206	0.208	1.00	0.274	pCi/L	11/02/20 06:26	12/16/20 07:59	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110	11/02/20 06:26	12/16/20 07:59	1

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.358**		0.213	0.216	1.00	0.270	pCi/L	11/02/20 06:26	12/16/20 07:59	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	75.7		40 - 110	11/02/20 06:26	12/16/20 07:59	1

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.675**		0.475	0.479	1.00	0.666	pCi/L	11/02/20 06:26	12/16/20 07:59	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.6		40 - 110	11/02/20 06:26	12/16/20 07:59	1

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.411	U	0.292	0.294	1.00	0.420	pCi/L	11/02/20 06:26	12/16/20 08:00	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	59.8		40 - 110	11/02/20 06:26	12/16/20 08:00	1

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**4.20**		0.986	1.06	1.00	0.750	pCi/L	11/02/20 06:26	12/16/20 08:00	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	59.5		40 - 110	11/02/20 06:26	12/16/20 08:00	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0632	U	0.246	0.246	1.00	0.430	pCi/L	10/30/20 08:51	12/03/20 12:26	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		40 - 110	10/30/20 08:51	12/03/20 12:26	1
Y Carrier	85.2		40 - 110	10/30/20 08:51	12/03/20 12:26	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.679**		0.377	0.382	1.00	0.563	pCi/L	10/30/20 08:51	12/03/20 12:21	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	73.0		40 - 110	10/30/20 08:51	12/03/20 12:21	1
Y Carrier	71.8		40 - 110	10/30/20 08:51	12/03/20 12:21	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.404	U	0.284	0.286	1.00	0.441	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110	10/30/20 08:51	12/03/20 12:34	1
Y Carrier	86.7		40 - 110	10/30/20 08:51	12/03/20 12:34	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.756		0.360	0.367	1.00	0.518	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*89.0*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.719		0.353	0.359	1.00	0.508	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.7*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*84.9*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.45		0.376	0.399	1.00	0.469	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.9*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*89.3*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.60		0.680	0.696	1.00	0.967	pCi/L	10/30/20 08:51	12/03/20 12:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*
Y Carrier	*75.1*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:34*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.263	U	0.283	0.284	1.00	0.462	pCi/L	11/02/20 07:00	12/15/20 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.0*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:43*	*1*
Y Carrier	*76.3*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:43*	*1*

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0780	U	0.272	0.272	1.00	0.479	pCi/L	11/02/20 07:00	12/15/20 13:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.4*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:44*	*1*
Y Carrier	*77.8*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:44*	*1*

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.615**		0.385	0.389	1.00	0.590	pCi/L	11/02/20 07:00	12/15/20 13:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.9*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:46*	*1*
Y Carrier	*68.0*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:46*	*1*

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.163	U	0.275	0.275	1.00	0.465	pCi/L	11/02/20 07:00	12/15/20 13:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.1*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:46*	*1*
Y Carrier	*81.5*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:46*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.103	U	0.359	0.359	1.00	0.624	pCi/L	11/02/20 07:00	12/15/20 13:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.5*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*
Y Carrier	*76.3*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.667**		0.323	0.329	1.00	0.475	pCi/L	11/02/20 07:00	12/15/20 13:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*
Y Carrier	*75.9*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.129	U	0.285	0.286	1.00	0.535	pCi/L	11/02/20 07:00	12/15/20 13:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.7*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*
Y Carrier	*80.0*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.76**	**G**	0.791	0.808	1.00	1.12	pCi/L	11/02/20 07:00	12/15/20 13:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.6*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*
Y Carrier	*75.9*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:47*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.07		0.473	0.483	1.00	0.680	pCi/L	11/02/20 07:00	12/15/20 13:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*59.8*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*
Y Carrier	*81.1*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.64	G	1.22	1.29	1.00	1.49	pCi/L	11/02/20 07:00	12/15/20 13:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*59.5*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*
Y Carrier	*68.8*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*

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

Client Sample ID: MW-25EB
Date Collected: 10/21/20 13:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.217	U	0.273	0.274	5.00	0.483	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-26
Date Collected: 10/20/20 12:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.02		0.434	0.440	5.00	0.590	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-27
Date Collected: 10/19/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.516		0.312	0.314	5.00	0.441	pCi/L		12/07/20 16:20	1

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

Client Sample ID: MW-28
Date Collected: 10/20/20 16:50
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.25		0.434	0.442	5.00	0.518	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-1
Date Collected: 10/20/20 13:05
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.913		0.402	0.408	5.00	0.508	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-3
Date Collected: 10/20/20 16:30
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.73		0.425	0.446	5.00	0.469	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-4
Date Collected: 10/21/20 08:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.18		0.763	0.779	5.00	0.967	pCi/L		12/07/20 16:20	1

Client Sample ID: MW-12D
Date Collected: 10/22/20 09:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.403	U	0.340	0.341	5.00	0.462	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-13
Date Collected: 10/19/20 15:10
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.249	U	0.344	0.344	5.00	0.479	pCi/L		12/30/20 12:55	1

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

Client Sample ID: MW-14
Date Collected: 10/21/20 12:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.01**		0.448	0.453	5.00	0.590	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-15
Date Collected: 10/20/20 15:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.384	U	0.338	0.339	5.00	0.465	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-16
Date Collected: 10/20/20 09:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.325	U	0.411	0.412	5.00	0.624	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-21
Date Collected: 10/20/20 10:00
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.01**		0.383	0.389	5.00	0.475	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-25
Date Collected: 10/21/20 13:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-22
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.230	U	0.356	0.358	5.00	0.535	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-6
Date Collected: 10/21/20 10:35
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-23
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**2.44**		0.923	0.939	5.00	1.12	pCi/L		12/30/20 12:55	1

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

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

Client Sample ID: MW-7
Date Collected: 10/20/20 14:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-24
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.48		0.556	0.565	5.00	0.680	pCi/L		12/30/20 12:55	1

Client Sample ID: MW-8
Date Collected: 10/21/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-25
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	8.84		1.57	1.67	5.00	1.49	pCi/L		12/30/20 12:55	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:00	1

Lab Sample ID: LCS 240-457900/2-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.991		mg/L		99	80 - 120

Lab Sample ID: MB 240-457901/1-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 15:56	1

Lab Sample ID: LCS 240-457901/2-A
Matrix: Water
Analysis Batch: 458130

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.984		mg/L		98	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:07	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:07	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:07	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:07	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:07	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:07	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:07	1

Lab Sample ID: LCS 240-457900/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.982		mg/L		98	80 - 120
Barium	1.00	0.982		mg/L		98	80 - 120
Calcium	25.0	24.4		mg/L		98	80 - 120
Cobalt	0.500	0.495		mg/L		99	80 - 120

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

Lab Sample ID: LCS 240-457900/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.500	0.499		mg/L		100	80 - 120
Molybdenum	0.500	0.480		mg/L		96	80 - 120
Lead	0.500	0.488		mg/L		98	80 - 120
Selenium	1.00	0.952		mg/L		95	80 - 120
Lithium	0.500	0.476		mg/L		95	80 - 120

Lab Sample ID: MB 240-457901/1-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 19:41	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 19:41	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 19:41	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 19:41	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 19:41	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 19:41	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 19:41	1
Selenium	ND		0.0050	0.00089	mg/L		10/27/20 14:00	10/28/20 19:41	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 19:41	1

Lab Sample ID: LCS 240-457901/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.968		mg/L		97	80 - 120
Barium	1.00	0.970		mg/L		97	80 - 120
Calcium	25.0	23.6		mg/L		94	80 - 120
Cobalt	0.500	0.488		mg/L		98	80 - 120
Chromium	0.500	0.484		mg/L		97	80 - 120
Molybdenum	0.500	0.477		mg/L		95	80 - 120
Lead	0.500	0.487		mg/L		97	80 - 120
Selenium	1.00	0.949		mg/L		95	80 - 120
Lithium	0.500	0.466		mg/L		93	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-514856/30
Matrix: Water
Analysis Batch: 514856

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		101	99 - 101

Method: 9040B - pH (Continued)

Lab Sample ID: LCS 280-514856/4
Matrix: Water
Analysis Batch: 514856

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

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

Lab Sample ID: 280-141888-6 DU
Matrix: Water
Analysis Batch: 514856

Client Sample ID: MW-26
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH adj. to 25 deg C	7.3	HF		7.3		SU				0.1	5
Temperature	22.6	HF		21.7		Degrees C				4	10

Lab Sample ID: LCS 280-516345/30
Matrix: Water
Analysis Batch: 516345

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		101	99 - 101		

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-516788/6
Matrix: Water
Analysis Batch: 516788

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/15/20 11:40	1
Fluoride	ND		0.50	0.17	mg/L			11/15/20 11:40	1
Sulfate	ND		5.0	1.0	mg/L			11/15/20 11:40	1

Lab Sample ID: LCS 280-516788/4
Matrix: Water
Analysis Batch: 516788

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	100		mg/L		100	90 - 110		
Fluoride			5.00	5.52		mg/L		110	90 - 110		
Sulfate			100	97.2		mg/L		97	90 - 110		

Lab Sample ID: LCSD 280-516788/5
Matrix: Water
Analysis Batch: 516788

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	99.4		mg/L		99	90 - 110	1	10
Fluoride			5.00	5.52		mg/L		110	90 - 110	0	10
Sulfate			100	97.0		mg/L		97	90 - 110	0	10

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

Lab Sample ID: MRL 280-516788/3
Matrix: Water
Analysis Batch: 516788

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	4.17		mg/L		83	50 - 150
Fluoride	0.500	0.570		mg/L		114	50 - 150
Sulfate	5.00	4.51	J	mg/L		90	50 - 150

Lab Sample ID: 280-141888-7 MS
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-27
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	15		50.0	57.7		mg/L		85	80 - 120
Fluoride	0.81		5.00	5.80		mg/L		100	80 - 120
Sulfate	39		50.0	83.4		mg/L		88	80 - 120

Lab Sample ID: 280-141888-7 MSD
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-27
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	15		50.0	65.6		mg/L		101	80 - 120	13	20
Fluoride	0.81		5.00	6.51		mg/L		114	80 - 120	12	20
Sulfate	39		50.0	90.0		mg/L		101	80 - 120	8	20

Lab Sample ID: 280-141888-20 MS
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	57		50.0	112		mg/L		110	80 - 120
Fluoride	1.4		5.00	7.32		mg/L		119	80 - 120

Lab Sample ID: 280-141888-20 MS
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	180		250	426		mg/L		98	80 - 120

Lab Sample ID: 280-141888-20 MSD
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	57		50.0	113		mg/L		111	80 - 120	0	20
Fluoride	1.4		5.00	7.40		mg/L		120	80 - 120	1	20

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

Lab Sample ID: 280-141888-20 MSD
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	180		250	433		mg/L		101	80 - 120	2	20

Lab Sample ID: 280-141888-7 DU
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-27
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	15		15.5		mg/L		1	15
Fluoride	0.81		0.811		mg/L		0.6	15
Sulfate	39		39.8		mg/L		1	15

Lab Sample ID: 280-141888-20 DU
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	57		56.8		mg/L		0.9	15
Fluoride	1.4		1.37		mg/L		1	15

Lab Sample ID: 280-141888-20 DU
Matrix: Water
Analysis Batch: 516788

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	180		163		mg/L		11	15

Lab Sample ID: MB 280-517046/6
Matrix: Water
Analysis Batch: 517046

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			11/17/20 18:02	1
Fluoride	ND		0.50	0.17	mg/L			11/17/20 18:02	1
Sulfate	ND		5.0	1.0	mg/L			11/17/20 18:02	1

Lab Sample ID: LCS 280-517046/4
Matrix: Water
Analysis Batch: 517046

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.0		mg/L		97	90 - 110
Fluoride	5.00	5.46		mg/L		109	90 - 110
Sulfate	100	94.9		mg/L		95	90 - 110

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

Lab Sample ID: LCSD 280-517046/5
Matrix: Water
Analysis Batch: 517046

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	95.3		mg/L		95	90 - 110	2	10
Fluoride			5.00	5.38		mg/L		108	90 - 110	2	10
Sulfate			100	93.8		mg/L		94	90 - 110	1	10

Lab Sample ID: MRL 280-517046/3
Matrix: Water
Analysis Batch: 517046

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	4.02		mg/L		80	50 - 150		
Fluoride			0.500	0.545		mg/L		109	50 - 150		
Sulfate			5.00	4.45	J	mg/L		89	50 - 150		

Lab Sample ID: 280-141888-17 MS
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	1900	H F1	1000	2680	F1	mg/L		173	80 - 120		

Lab Sample ID: 280-141888-17 MSD
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	1900	H F1	1000	2900	F1	mg/L		196	80 - 120	8	20

Lab Sample ID: 280-141888-21 MS
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	2400	H	2500	5240		mg/L		115	80 - 120		

Lab Sample ID: 280-141888-21 MSD
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	2400	H	2500	5230		mg/L		115	80 - 120	0	20

Lab Sample ID: 280-141888-17 DU
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	1900	H F1		1620		mg/L				15	15

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

Lab Sample ID: 280-141888-21 DU
Matrix: Water
Analysis Batch: 517046

Client Sample ID: MW-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	2400	H		2480		mg/L				5	15

Lab Sample ID: MB 280-517201/6
Matrix: Water
Analysis Batch: 517201

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			11/18/20 16:24	1

Lab Sample ID: LCS 280-517201/4
Matrix: Water
Analysis Batch: 517201

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			100	96.7		mg/L		97	90 - 110		

Lab Sample ID: LCSD 280-517201/5
Matrix: Water
Analysis Batch: 517201

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate			100	96.5		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-517201/3
Matrix: Water
Analysis Batch: 517201

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			5.00	4.77	J	mg/L		95	50 - 150		

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-514175/2
Matrix: Water
Analysis Batch: 514175

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/26/20 18:23	1

Lab Sample ID: LCS 280-514175/1
Matrix: Water
Analysis Batch: 514175

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	509		mg/L		102	93 - 110		

Method: SM2540 C - Total Dissolved Solids (Continued)

Lab Sample ID: MB 280-514337/2
Matrix: Water
Analysis Batch: 514337

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/27/20 18:02	1

Lab Sample ID: LCS 280-514337/1
Matrix: Water
Analysis Batch: 514337

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	526		mg/L		105	93 - 110

Lab Sample ID: 280-141888-8 DU
Matrix: Water
Analysis Batch: 514337

Client Sample ID: MW-28
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	7400		7490		mg/L		1	10

Lab Sample ID: MB 280-514447/1
Matrix: Water
Analysis Batch: 514447

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/28/20 11:41	1

Lab Sample ID: LCS 280-514447/2
Matrix: Water
Analysis Batch: 514447

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	489		mg/L		98	93 - 110

Lab Sample ID: MB 280-514463/1
Matrix: Water
Analysis Batch: 514463

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/28/20 13:43	1

Lab Sample ID: LCS 280-514463/2
Matrix: Water
Analysis Batch: 514463

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	537		mg/L		107	93 - 110

Method: SM2540 C - Total Dissolved Solids (Continued)

Lab Sample ID: MB 280-514767/2
Matrix: Water
Analysis Batch: 514767

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/29/20 21:24	1

Lab Sample ID: LCS 280-514767/1
Matrix: Water
Analysis Batch: 514767

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	471		mg/L		94	93 - 110

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-487286/23-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487286

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09006	U	0.116	0.117	1.00	0.193	pCi/L	10/29/20 15:29	12/04/20 16:39	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:39*	*1*

Lab Sample ID: LCS 160-487286/1-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487286

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	11.43		1.42	1.00	0.227	pCi/L	101	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*82.4*		*40 - 110*

Lab Sample ID: MB 160-487651/23-A
Matrix: Water
Analysis Batch: 491983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487651

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1130	U	0.158	0.159	1.00	0.268	pCi/L	11/02/20 06:26	12/16/20 08:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.4*		*40 - 110*	*11/02/20 06:26*	*12/16/20 08:02*	*1*

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

Lab Sample ID: LCS 160-487651/1-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487651

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.830		1.17	1.00	0.206	pCi/L	87	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*76.5*		*40 - 110*

Lab Sample ID: LCSD 160-487651/2-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487651

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.65		1.29	1.00	0.252	pCi/L	94	75 - 125	0.34	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*64.2*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-487309/23-A
Matrix: Water
Analysis Batch: 490765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487309

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2676	U	0.300	0.301	1.00	0.493	pCi/L	10/30/20 08:51	12/03/20 12:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:36*	*1*
Y Carrier	*81.5*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:36*	*1*

Lab Sample ID: LCS 160-487309/1-A
Matrix: Water
Analysis Batch: 490847

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487309

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.61	8.144		0.997	1.00	0.388	pCi/L	107	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*82.4*		*40 - 110*
Y Carrier	*89.0*		*40 - 110*

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

Lab Sample ID: MB 160-487652/23-A
Matrix: Water
Analysis Batch: 491763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487652

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2612	U	0.338	0.339	1.00	0.562	pCi/L	11/02/20 07:00	12/15/20 13:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.4*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:50*	*1*
Y Carrier	*76.3*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:50*	*1*

Lab Sample ID: LCS 160-487652/1-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.58	6.993		0.948	1.00	0.496	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*76.5*		*40 - 110*
Y Carrier	*78.5*		*40 - 110*

Lab Sample ID: LCSD 160-487652/2-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.58	7.860		1.12	1.00	0.717	pCi/L	104	75 - 125	0.42	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*64.2*		*40 - 110*
Y Carrier	*74.4*		*40 - 110*

Metals

Prep Batch: 457900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total Recoverable	Water	3005A	
280-141888-6	MW-26	Total Recoverable	Water	3005A	
280-141888-7	MW-27	Total Recoverable	Water	3005A	
280-141888-8	MW-28	Total Recoverable	Water	3005A	
280-141888-9	MW-1	Total Recoverable	Water	3005A	
280-141888-10	MW-3	Total Recoverable	Water	3005A	
280-141888-11	MW-4	Total Recoverable	Water	3005A	
280-141888-16	MW-12D	Total Recoverable	Water	3005A	
280-141888-17	MW-13	Total Recoverable	Water	3005A	
280-141888-18	MW-14	Total Recoverable	Water	3005A	
280-141888-19	MW-15	Total Recoverable	Water	3005A	
280-141888-20	MW-16	Total Recoverable	Water	3005A	
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 457901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-21	MW-21	Total Recoverable	Water	3005A	
280-141888-22	MW-25	Total Recoverable	Water	3005A	
280-141888-23	MW-6	Total Recoverable	Water	3005A	
280-141888-24	MW-7	Total Recoverable	Water	3005A	
280-141888-25	MW-8	Total Recoverable	Water	3005A	
280-141888-27	MW-5	Total Recoverable	Water	3005A	
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-457901/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-457901/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 458130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total Recoverable	Water	6010C	457900
280-141888-6	MW-26	Total Recoverable	Water	6010C	457900
280-141888-7	MW-27	Total Recoverable	Water	6010C	457900
280-141888-8	MW-28	Total Recoverable	Water	6010C	457900
280-141888-9	MW-1	Total Recoverable	Water	6010C	457900
280-141888-10	MW-3	Total Recoverable	Water	6010C	457900
280-141888-11	MW-4	Total Recoverable	Water	6010C	457900
280-141888-16	MW-12D	Total Recoverable	Water	6010C	457900
280-141888-17	MW-13	Total Recoverable	Water	6010C	457900
280-141888-18	MW-14	Total Recoverable	Water	6010C	457900
280-141888-19	MW-15	Total Recoverable	Water	6010C	457900
280-141888-20	MW-16	Total Recoverable	Water	6010C	457900
280-141888-21	MW-21	Total Recoverable	Water	6010C	457901
280-141888-22	MW-25	Total Recoverable	Water	6010C	457901
280-141888-23	MW-6	Total Recoverable	Water	6010C	457901
280-141888-24	MW-7	Total Recoverable	Water	6010C	457901
280-141888-25	MW-8	Total Recoverable	Water	6010C	457901
280-141888-27	MW-5	Total Recoverable	Water	6010C	457901
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6010C	457900
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	6010C	457901

Metals (Continued)

Analysis Batch: 458130 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	6010C	457900
LCS 240-457901/2-A	Lab Control Sample	Total Recoverable	Water	6010C	457901

Analysis Batch: 458287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total Recoverable	Water	6020A	457900
280-141888-6	MW-26	Total Recoverable	Water	6020A	457900
280-141888-7	MW-27	Total Recoverable	Water	6020A	457900
280-141888-8	MW-28	Total Recoverable	Water	6020A	457900
280-141888-9	MW-1	Total Recoverable	Water	6020A	457900
280-141888-10	MW-3	Total Recoverable	Water	6020A	457900
280-141888-11	MW-4	Total Recoverable	Water	6020A	457900
280-141888-16	MW-12D	Total Recoverable	Water	6020A	457900
280-141888-17	MW-13	Total Recoverable	Water	6020A	457900
280-141888-18	MW-14	Total Recoverable	Water	6020A	457900
280-141888-19	MW-15	Total Recoverable	Water	6020A	457900
280-141888-20	MW-16	Total Recoverable	Water	6020A	457900
280-141888-21	MW-21	Total Recoverable	Water	6020A	457901
280-141888-22	MW-25	Total Recoverable	Water	6020A	457901
280-141888-23	MW-6	Total Recoverable	Water	6020A	457901
280-141888-24	MW-7	Total Recoverable	Water	6020A	457901
280-141888-25	MW-8	Total Recoverable	Water	6020A	457901
280-141888-27	MW-5	Total Recoverable	Water	6020A	457901
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6020A	457900
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	6020A	457901
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	6020A	457900
LCS 240-457901/3-A	Lab Control Sample	Total Recoverable	Water	6020A	457901

General Chemistry

Analysis Batch: 514175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-7	MW-27	Total/NA	Water	SM2540 C	
280-141888-17	MW-13	Total/NA	Water	SM2540 C	
MB 280-514175/2	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514175/1	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-6	MW-26	Total/NA	Water	SM2540 C	
280-141888-8	MW-28	Total/NA	Water	SM2540 C	
280-141888-9	MW-1	Total/NA	Water	SM2540 C	
280-141888-10	MW-3	Total/NA	Water	SM2540 C	
280-141888-19	MW-15	Total/NA	Water	SM2540 C	
280-141888-20	MW-16	Total/NA	Water	SM2540 C	
280-141888-21	MW-21	Total/NA	Water	SM2540 C	
280-141888-24	MW-7	Total/NA	Water	SM2540 C	
MB 280-514337/2	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514337/1	Lab Control Sample	Total/NA	Water	SM2540 C	
280-141888-8 DU	MW-28	Total/NA	Water	SM2540 C	

General Chemistry

Analysis Batch: 514447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total/NA	Water	SM2540 C	
280-141888-11	MW-4	Total/NA	Water	SM2540 C	
280-141888-22	MW-25	Total/NA	Water	SM2540 C	
280-141888-23	MW-6	Total/NA	Water	SM2540 C	
MB 280-514447/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514447/2	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-18	MW-14	Total/NA	Water	SM2540 C	
280-141888-25	MW-8	Total/NA	Water	SM2540 C	
MB 280-514463/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514463/2	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-16	MW-12D	Total/NA	Water	SM2540 C	
MB 280-514767/2	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514767/1	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-6	MW-26	Total/NA	Water	9040B	
280-141888-7	MW-27	Total/NA	Water	9040B	
280-141888-8	MW-28	Total/NA	Water	9040B	
280-141888-9	MW-1	Total/NA	Water	9040B	
280-141888-10	MW-3	Total/NA	Water	9040B	
280-141888-11	MW-4	Total/NA	Water	9040B	
280-141888-16	MW-12D	Total/NA	Water	9040B	
280-141888-17	MW-13	Total/NA	Water	9040B	
280-141888-18	MW-14	Total/NA	Water	9040B	
280-141888-19	MW-15	Total/NA	Water	9040B	
280-141888-20	MW-16	Total/NA	Water	9040B	
280-141888-21	MW-21	Total/NA	Water	9040B	
280-141888-22	MW-25	Total/NA	Water	9040B	
280-141888-23	MW-6	Total/NA	Water	9040B	
LCS 280-514856/30	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-514856/4	Lab Control Sample	Total/NA	Water	9040B	
280-141888-6 DU	MW-26	Total/NA	Water	9040B	

Analysis Batch: 516345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total/NA	Water	9040B	
280-141888-24	MW-7	Total/NA	Water	9040B	
280-141888-25	MW-8	Total/NA	Water	9040B	
LCS 280-516345/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 516788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 516788 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-6	MW-26	Total/NA	Water	9056A	
280-141888-6	MW-26	Total/NA	Water	9056A	
280-141888-7	MW-27	Total/NA	Water	9056A	
280-141888-8	MW-28	Total/NA	Water	9056A	
280-141888-8	MW-28	Total/NA	Water	9056A	
280-141888-9	MW-1	Total/NA	Water	9056A	
280-141888-9	MW-1	Total/NA	Water	9056A	
280-141888-10	MW-3	Total/NA	Water	9056A	
280-141888-10	MW-3	Total/NA	Water	9056A	
280-141888-11	MW-4	Total/NA	Water	9056A	
280-141888-11	MW-4	Total/NA	Water	9056A	
280-141888-16	MW-12D	Total/NA	Water	9056A	
280-141888-17	MW-13	Total/NA	Water	9056A	
280-141888-17	MW-13	Total/NA	Water	9056A	
280-141888-18	MW-14	Total/NA	Water	9056A	
280-141888-18	MW-14	Total/NA	Water	9056A	
280-141888-19	MW-15	Total/NA	Water	9056A	
280-141888-19	MW-15	Total/NA	Water	9056A	
280-141888-20	MW-16	Total/NA	Water	9056A	
280-141888-20	MW-16	Total/NA	Water	9056A	
280-141888-21	MW-21	Total/NA	Water	9056A	
280-141888-21	MW-21	Total/NA	Water	9056A	
280-141888-22	MW-25	Total/NA	Water	9056A	
280-141888-22	MW-25	Total/NA	Water	9056A	
280-141888-23	MW-6	Total/NA	Water	9056A	
280-141888-23	MW-6	Total/NA	Water	9056A	
280-141888-24	MW-7	Total/NA	Water	9056A	
280-141888-25	MW-8	Total/NA	Water	9056A	
280-141888-25	MW-8	Total/NA	Water	9056A	
MB 280-516788/6	Method Blank	Total/NA	Water	9056A	
LCS 280-516788/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-516788/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-516788/3	Lab Control Sample	Total/NA	Water	9056A	
280-141888-7 MS	MW-27	Total/NA	Water	9056A	
280-141888-7 MSD	MW-27	Total/NA	Water	9056A	
280-141888-20 MS	MW-16	Total/NA	Water	9056A	
280-141888-20 MS	MW-16	Total/NA	Water	9056A	
280-141888-20 MSD	MW-16	Total/NA	Water	9056A	
280-141888-20 MSD	MW-16	Total/NA	Water	9056A	
280-141888-7 DU	MW-27	Total/NA	Water	9056A	
280-141888-20 DU	MW-16	Total/NA	Water	9056A	
280-141888-20 DU	MW-16	Total/NA	Water	9056A	

Analysis Batch: 517046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-8	MW-28	Total/NA	Water	9056A	
280-141888-11	MW-4	Total/NA	Water	9056A	
280-141888-17	MW-13	Total/NA	Water	9056A	
280-141888-21	MW-21	Total/NA	Water	9056A	
280-141888-25	MW-8	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 517046 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-517046/6	Method Blank	Total/NA	Water	9056A	
LCS 280-517046/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-517046/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-517046/3	Lab Control Sample	Total/NA	Water	9056A	
280-141888-17 MS	MW-13	Total/NA	Water	9056A	
280-141888-17 MSD	MW-13	Total/NA	Water	9056A	
280-141888-21 MS	MW-21	Total/NA	Water	9056A	
280-141888-21 MSD	MW-21	Total/NA	Water	9056A	
280-141888-17 DU	MW-13	Total/NA	Water	9056A	
280-141888-21 DU	MW-21	Total/NA	Water	9056A	

Analysis Batch: 517201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-10	MW-3	Total/NA	Water	9056A	
MB 280-517201/6	Method Blank	Total/NA	Water	9056A	
LCS 280-517201/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-517201/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-517201/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 487286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total/NA	Water	PrecSep-21	
280-141888-6	MW-26	Total/NA	Water	PrecSep-21	
280-141888-7	MW-27	Total/NA	Water	PrecSep-21	
280-141888-8	MW-28	Total/NA	Water	PrecSep-21	
280-141888-9	MW-1	Total/NA	Water	PrecSep-21	
280-141888-10	MW-3	Total/NA	Water	PrecSep-21	
280-141888-11	MW-4	Total/NA	Water	PrecSep-21	
MB 160-487286/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487286/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 487309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-5	MW-25EB	Total/NA	Water	PrecSep_0	
280-141888-6	MW-26	Total/NA	Water	PrecSep_0	
280-141888-7	MW-27	Total/NA	Water	PrecSep_0	
280-141888-8	MW-28	Total/NA	Water	PrecSep_0	
280-141888-9	MW-1	Total/NA	Water	PrecSep_0	
280-141888-10	MW-3	Total/NA	Water	PrecSep_0	
280-141888-11	MW-4	Total/NA	Water	PrecSep_0	
MB 160-487309/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487309/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 487651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-16	MW-12D	Total/NA	Water	PrecSep-21	
280-141888-17	MW-13	Total/NA	Water	PrecSep-21	
280-141888-18	MW-14	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 487651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-19	MW-15	Total/NA	Water	PrecSep-21	
280-141888-20	MW-16	Total/NA	Water	PrecSep-21	
280-141888-21	MW-21	Total/NA	Water	PrecSep-21	
280-141888-22	MW-25	Total/NA	Water	PrecSep-21	
280-141888-23	MW-6	Total/NA	Water	PrecSep-21	
280-141888-24	MW-7	Total/NA	Water	PrecSep-21	
280-141888-25	MW-8	Total/NA	Water	PrecSep-21	
MB 160-487651/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487651/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487651/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-16	MW-12D	Total/NA	Water	PrecSep_0	
280-141888-17	MW-13	Total/NA	Water	PrecSep_0	
280-141888-18	MW-14	Total/NA	Water	PrecSep_0	
280-141888-19	MW-15	Total/NA	Water	PrecSep_0	
280-141888-20	MW-16	Total/NA	Water	PrecSep_0	
280-141888-21	MW-21	Total/NA	Water	PrecSep_0	
280-141888-22	MW-25	Total/NA	Water	PrecSep_0	
280-141888-23	MW-6	Total/NA	Water	PrecSep_0	
280-141888-24	MW-7	Total/NA	Water	PrecSep_0	
280-141888-25	MW-8	Total/NA	Water	PrecSep_0	
MB 160-487652/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487652/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487652/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Client Sample ID: MW-25EB
Lab Sample ID: 280-141888-5
Date Collected: 10/21/20 13:50
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:50	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:36	DSH	TAL CAN
Total/NA	Analysis	9040B		1			516345	11/10/20 23:07	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 20:18	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	514447	10/28/20 11:41	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.82 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 14:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.82 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490847	12/03/20 12:26	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-26
Lab Sample ID: 280-141888-6
Date Collected: 10/20/20 12:20
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:54	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:39	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:45	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 11:43	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	516788	11/16/20 11:59	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	30 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.41 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:37	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.41 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	490847	12/03/20 12:21	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-27
Lab Sample ID: 280-141888-7
Date Collected: 10/19/20 16:30
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:59	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:41	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:06	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 03:24	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-27
Lab Sample ID: 280-141888-7
Date Collected: 10/19/20 16:30
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514175	10/26/20 18:23	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.04 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.04 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-28
Lab Sample ID: 280-141888-8
Date Collected: 10/20/20 16:50
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:03	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:44	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:20	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 13:21	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	516788	11/16/20 13:38	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	517046	11/17/20 22:35	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	10 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			750.11 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.11 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-1
Lab Sample ID: 280-141888-9
Date Collected: 10/20/20 13:05
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:08	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:47	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 21:08	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 01:46	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/16/20 02:02	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.38 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL

Client Sample ID: MW-1
Lab Sample ID: 280-141888-9
Date Collected: 10/20/20 13:05
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.38 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-3
Lab Sample ID: 280-141888-10
Date Collected: 10/20/20 16:30
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:12	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:49	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:56	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 22:29	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/15/20 22:46	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	517201	11/18/20 23:39	BWH	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.19 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.19 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Client Sample ID: MW-4
Lab Sample ID: 280-141888-11
Date Collected: 10/21/20 08:00
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:16	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:52	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:52	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 21:23	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	516788	11/15/20 21:40	CJ	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	517046	11/17/20 23:07	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	10 mL	100 mL	514447	10/28/20 11:41	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			499.96 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 16:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			499.96 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490805	12/03/20 12:34	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			491072	12/07/20 16:20	SCB	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-12D
Lab Sample ID: 280-141888-16
Date Collected: 10/22/20 09:10
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:46	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:09	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:49	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 15:16	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514767	10/29/20 21:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.54 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 06:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.54 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491762	12/15/20 13:43	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-13
Lab Sample ID: 280-141888-17
Date Collected: 10/19/20 15:10
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:51	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:12	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:02	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 14:43	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/16/20 15:00	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	517046	11/18/20 01:02	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	514175	10/26/20 18:23	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 06:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491762	12/15/20 13:44	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-14
Lab Sample ID: 280-141888-18
Date Collected: 10/21/20 12:45
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 19:55	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:14	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 18:56	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-14
Lab Sample ID: 280-141888-18
Date Collected: 10/21/20 12:45
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 12:16	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	516788	11/16/20 12:32	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	514463	10/28/20 13:43	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.93 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 06:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.93 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:46	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-15
Lab Sample ID: 280-141888-19
Date Collected: 10/20/20 15:00
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/29/20 05:51	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:17	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:20	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 12:48	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/16/20 13:05	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	40 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.18 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 06:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.18 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:46	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-16
Lab Sample ID: 280-141888-20
Date Collected: 10/20/20 09:35
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/29/20 05:55	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 23:19	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 21:04	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 17:36	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/15/20 19:14	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	60 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.45 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 07:59	FLC	TAL SL

Client Sample ID: MW-16
Lab Sample ID: 280-141888-20
Date Collected: 10/20/20 09:35
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.45 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:47	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-21
Lab Sample ID: 280-141888-21
Date Collected: 10/20/20 10:00
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:21	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:23	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:56	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 16:22	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/16/20 16:38	CJ	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	517046	11/18/20 04:19	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	15 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.79 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 07:59	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.79 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:47	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-25
Lab Sample ID: 280-141888-22
Date Collected: 10/21/20 13:20
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:25	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:26	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:24	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 00:08	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/16/20 00:24	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	514447	10/28/20 11:41	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.44 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 07:59	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.44 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:47	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-6
Lab Sample ID: 280-141888-23
Date Collected: 10/21/20 10:35
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:30	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:28	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:45	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 23:35	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	516788	11/15/20 23:51	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	514447	10/28/20 11:41	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			499.18 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 07:59	FLC	TAL SL
Total/NA	Prep	PrecSep_0			499.18 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:47	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-7
Lab Sample ID: 280-141888-24
Date Collected: 10/20/20 14:20
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:34	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:31	DSH	TAL CAN
Total/NA	Analysis	9040B		1			516345	11/10/20 23:11	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 20:51	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514337	10/27/20 18:02	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.69 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 08:00	FLC	TAL SL
Total/NA	Prep	PrecSep_0			999.69 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:48	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-8
Lab Sample ID: 280-141888-25
Date Collected: 10/21/20 09:20
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:39	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:38	DSH	TAL CAN
Total/NA	Analysis	9040B		1			516345	11/10/20 23:15	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 16:30	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Client Sample ID: MW-8
Lab Sample ID: 280-141888-25
Date Collected: 10/21/20 09:20
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/15/20 16:47	CJ	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	517046	11/18/20 11:54	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	25 mL	100 mL	514463	10/28/20 13:43	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			499.80 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1			491983	12/16/20 08:00	FLC	TAL SL
Total/NA	Prep	PrecSep_0			499.80 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1			491763	12/15/20 13:48	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493510	12/30/20 12:55	SCB	TAL SL

Client Sample ID: MW-5
Lab Sample ID: 280-141888-27
Date Collected: 10/22/20 11:35
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:56	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:43	DSH	TAL CAN

Laboratory References:

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

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

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	06-30-21
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
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Munoz	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.1
Client Contact: Molly Reeves	Phone: 720 273 3136	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 1 of 3
Company: HDR Inc				Job #:

Analysis Requested

Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:
City: Englewood	TAT Requested (days): PEL CONTRACT
State, Zip: CO, 80112	
Phone: 734-263-7138(Tel)	PO #: DEN-018
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379
Site: Colorado Settling Pond	SSOW#:

280-141888 Chain of Custody

Preservation Codes:
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)
K - EDTA; L - EDA
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A Total Metals - ETA Canton w/o Se,Cd,Hg,Tl	2540C_Calcd TDS / Method 300 Chloride, fluoride, Sulfate/pH	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis	Total Number of containe	Special Instructions/Note:
			Preservation Code:				D	N	D		
MW-17	10/22/20	0915	G	Water	N	N	1	2	2	5	Metals App III + IV w/o Se, Cd, Hg, Tl, Se
MW-18	10/22/20	1045	G	Water	N	N	1	2	2	5	
MW-19B	10/21/20	1545	G	Water	N	N	1	2	2	5	
MW-20	10/22/20	1240	G	Water	N	N	1	2	2	5	
MW-25EB	10/21/20	1350	G	W	N	N	1	2	2	5	
MW-26	10/20/20	1220	G	W	N	N	1	2	2	5	
MW-27	10/19/20	1430	G	W	N	N	1	2	2	5	
MW-28	10/20/20	1650	G	W	N	N	1	2	2	5	
MW-1	10/20/20	1305	G	W	N	N	1	2	2	5	
MW-3	10/20/20	1630	G	W	N	N	1	2	2	5	
MW-4	10/21/20	0800	G	W	N	N	1	2	2	5	

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time: 10/22/20 1418	Company HDR	Received by:	Date/Time: 10/22/20 1418	Company EURO/TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.6, 3.1, 1.2, 0.4, 3.6, 0.9, 0.7 IR#11-02

Ver: 01/16/2019

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Minton	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.2
Client Contact: Molly Reeves	Phone: 720 273 3436	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 2 of 3
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:	Analysis Requested		
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: COLORADO Ash Ponds + Landfill	SSOW#:			

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A Total Metals - ETA Canton No Be, Tl	2540C_Calcd TDS/ Method 300.0 Chloride/Fluoride/Sulfate/ pH	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis	6010C/6020A: No Sb, Cd, Hg, Metals, No Sb, Be, Cd, Hg, Tl	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D			
MW-1P	10/21/20	1610	G	Water			1	2	2		5	Ash Ponds: App III + IV w/o Be, Hg, Tl
MW-9	10/21/20	1445	G	Water			1	2	2		5	
MW-11	10/22/20	1050	G	Water			1	2	2		5	
MW-12	10/22/20	0910	G	Water			1	2	2		5	
MW-12D	10/22/20	0910	G	W			1	2	2		5	
MW-13	10/19/20	1510	G	W				2	2	1	5	Landfill: Metals App III + IV w/o Sb, Be, Cd, Hg, Tl
MW-14	10/21/20	1245	G	W				2	2	1	5	
MW-15	10/20/20	1500	G	W				2	2	1	5	
MW-16	10/20/20	0935	G	W				2	2	1	5	
MW-21	10/20/20	1000	G	W				2	2	1	5	
MW-25	10/21/20	1320	G	W				2	2	1	5	

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/22/20 1418	HDR	Laurence Chang	10/22/20 1418	EUROFTA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Munoz	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.3
Client Contact: Molly Reeves	Phone: 720 273 3136	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 3 of 3
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:
City: Englewood	TAT Requested (days): Per Contract
State, Zip: CO, 80112	
Phone: 734-263-7138(Tel)	PO #: DEN-018
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379
Site: Colorado Landfill Wells + Settling Pond	SSOW#:

Analysis Requested

Preservation Codes:

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

Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 6010C, 6020A Total Metals - ETA Canton | 2540C_Calcd TDS/ IC Chloride, Fluoride, Sulfate/ pH | 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis | | | |

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-25EB (280-141888-5)	10/21/20	13:50 Mountain		Water			X	X	X	2	
MW-26 (280-141888-6)	10/20/20	12:20 Mountain		Water			X	X	X	2	
MW-27 (280-141888-7)	10/19/20	16:30 Mountain		Water			X	X	X	2	
MW-28 (280-141888-8)	10/20/20	16:50 Mountain		Water			X	X	X	2	
MW-1 (280-141888-9)	10/20/20	13:05 Mountain		Water			X	X	X	2	
MW-3 (280-141888-10)	10/20/20	16:30 Mountain		Water			X	X	X	2	
MW-4 (280-141888-11)	10/21/20	08:00 Mountain		Water			X	X	X	2	
MW-1P (280-141888-12)	10/21/20	16:10 Mountain		Water			X	X	X	2	
MW-9 (280-141888-13)	10/21/20	14:45 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/23/20 1400		FedEx		
2	FedEx			[signature]	10/24/20 08:35	ETASTL
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-11 (280-141888-14)	10/22/20	10:50 Mountain		Water			X	X	X	2	
MW-12 (280-141888-15)	10/22/20	09:10 Mountain		Water			X	X	X	2	
MW-12D (280-141888-16)	10/22/20	09:10 Mountain		Water			X	X	X	2	
MW-13 (280-141888-17)	10/19/20	15:10 Mountain		Water			X	X	X	2	
MW-14 (280-141888-18)	10/21/20	12:45 Mountain		Water			X	X	X	2	
MW-15 (280-141888-19)	10/20/20	15:00 Mountain		Water			X	X	X	2	
MW-16 (280-141888-20)	10/20/20	09:35 Mountain		Water			X	X	X	2	
MW-21 (280-141888-21)	10/20/20	10:00 Mountain		Water			X	X	X	2	
MW-25 (280-141888-22)	10/21/20	13:20 Mountain		Water			X	X	X	2	

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

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/23/2020 1400		FedEx		
Relinquished by: FedEx	Date/Time:	Company	Received by:	Date/Time: 10/24/20 08:35	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Ash Ponds	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-6 (280-141888-23)	10/21/20	10:35 Mountain		Water			X	X	X	2	
MW-7 (280-141888-24)	10/20/20	14:20 Mountain		Water			X	X	X	2	
MW-8 (280-141888-25)	10/21/20	09:20 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/23/2020 1400		FedEx		
2	Relinquished by: FedEx	Date/Time:	Company	Received by: [signature]	Date/Time: 10/24/20 08:35	Company ETASTL
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544248.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-2
Address: 4101 Shuffel Street NW, .	Due Date Requested: 11/13/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Landfill	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S81

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-25EB (280-141888-5)	10/21/20	13:50 Mountain		Water			X	X	2	Use Collision Cell
MW-26 (280-141888-6)	10/20/20	12:20 Mountain		Water			X	X	2	Use Collision Cell
MW-27 (280-141888-7)	10/19/20	16:30 Mountain		Water			X	X	2	Use Collision Cell
MW-28 (280-141888-8)	10/20/20	16:50 Mountain		Water			X	X	2	Use Collision Cell
MW-1 (280-141888-9)	10/20/20	13:05 Mountain		Water			X	X	2	Use Collision Cell
MW-3 (280-141888-10)	10/20/20	16:30 Mountain		Water			X	X	2	Use Collision Cell
MW-4 (280-141888-11)	10/21/20	08:00 Mountain		Water			X	X	2	Use Collision Cell
MW-12D (280-141888-16)	10/22/20	09:10 Mountain		Water			X	X	2	Use Collision Cell
MW-13 (280-141888-17)	10/19/20	15:10 Mountain		Water			X	X	2	Use Collision Cell

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/23/2020 1330			10-24-20 940	ETAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544248.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-2
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/13/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Landfill	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S81

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-14 (280-141888-18)	10/21/20	12:45 Mountain		Water			X	X	2	Use Collision Cell
MW-15 (280-141888-19)	10/20/20	15:00 Mountain		Water			X	X	2	Use Collision Cell
MW-16 (280-141888-20)	10/20/20	09:35 Mountain		Water			X	X	2	Use Collision Cell
MW-21 (280-141888-21)	10/20/20	10:00 Mountain		Water			X	X	2	Use Collision Cell
MW-25 (280-141888-22)	10/21/20	13:20 Mountain		Water			X	X	2	Use Collision Cell
MW-6 (280-141888-23)	10/21/20	10:35 Mountain		Water			X	X	2	Use Collision Cell
MW-7 (280-141888-24)	10/20/20	14:20 Mountain		Water			X	X	2	Use Collision Cell
MW-8 (280-141888-25)	10/21/20	09:20 Mountain		Water			X	X	2	Use Collision Cell

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/23/2020 1330			10-24-20 940	ETC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544269.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-2
Address: 4101 Shuffel Street NW, .	Due Date Requested: 11/13/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Landfill	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S 81

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-5 (280-141888-27)	10/22/20	11:35 Mountain		Water			X	X	1	Use Collision Cell

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

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/23/2020 1330			10-24-20 940	TAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-2

Login Number: 141888
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-2

Login Number: 141888
List Number: 3
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/24/20 12:26 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
280-141888-5	MW-25EB	85.6						
280-141888-6	MW-26	73.0						
280-141888-7	MW-27	81.2						
280-141888-8	MW-28	85.3						
280-141888-9	MW-1	65.7						
280-141888-10	MW-3	80.9						
280-141888-11	MW-4	89.7						
280-141888-16	MW-12D	73.0						
280-141888-17	MW-13	72.4						
280-141888-18	MW-14	78.9						
280-141888-19	MW-15	82.1						
280-141888-20	MW-16	69.5						
280-141888-21	MW-21	90.3						
280-141888-22	MW-25	75.7						
280-141888-23	MW-6	68.6						
280-141888-24	MW-7	59.8						
280-141888-25	MW-8	59.5						
LCS 160-487286/1-A	Lab Control Sample	82.4						
LCS 160-487651/1-A	Lab Control Sample	76.5						
LCSD 160-487651/2-A	Lab Control Sample Dup	64.2						
MB 160-487286/23-A	Method Blank	85.3						
MB 160-487651/23-A	Method Blank	72.4						

Tracer/Carrier Legend

Ba = Ba 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)					
280-141888-5	MW-25EB	85.6	85.2					
280-141888-6	MW-26	73.0	71.8					
280-141888-7	MW-27	81.2	86.7					
280-141888-8	MW-28	85.3	89.0					
280-141888-9	MW-1	65.7	84.9					
280-141888-10	MW-3	80.9	89.3					
280-141888-11	MW-4	89.7	75.1					
280-141888-16	MW-12D	73.0	76.3					
280-141888-17	MW-13	72.4	77.8					
280-141888-18	MW-14	78.9	68.0					
280-141888-19	MW-15	82.1	81.5					
280-141888-20	MW-16	69.5	76.3					
280-141888-21	MW-21	90.3	75.9					
280-141888-22	MW-25	75.7	80.0					
280-141888-23	MW-6	68.6	75.9					
280-141888-24	MW-7	59.8	81.1					
280-141888-25	MW-8	59.5	68.8					

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-141888-2
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Landfill

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)
LCS 160-487309/1-A	Lab Control Sample	82.4	89.0
LCS 160-487652/1-A	Lab Control Sample	76.5	78.5
LCSD 160-487652/2-A	Lab Control Sample Dup	64.2	74.4
MB 160-487309/23-A	Method Blank	85.3	81.5
MB 160-487652/23-A	Method Blank	72.4	76.3

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-141888-3
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont Settling P

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

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
12/30/2020 3:54:12 PM

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LINKS

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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
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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

Job ID: 280-141888-3

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont Settling P

Report Number: 280-141888-3

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 10/22/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.1º C, 0.6º C, 0.6º C, 0.9º C, 1.3º C, 2.8º C and 3.5º C.

Please note, this report only contains results for sample MW-17, MW-18, MW-19B, MW-20 and MW-17D. All other results are under job 280-141888-1 and 280-141888-2.

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

GENERAL CHEMISTRY- VARIOUS
Samples MW-18 (280-141888-2) and MW-20 (280-141888-4) required dilution or prepped at a dilution prior to analysis of various methods. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)- METHOD 9315
Insufficient sample volume was available to perform a sample duplicate for analytical batches 160-492301 and 160-490007. 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
Insufficient sample volume was available to perform a sample duplicate for prep batches 160-487267 and 160-487652. 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
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Client Sample ID: MW-17
Lab Sample ID: 280-141888-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.49		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.13		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	64		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00059	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0074	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0088		0.0080	0.0017	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	19.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	54		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	160		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	580		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-18
Lab Sample ID: 280-141888-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.38		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0021	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.030		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	35		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00020	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0022		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.021		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.035		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	20		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	200		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	700		17	7.8	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-19B
Lab Sample ID: 280-141888-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.6		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.071		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	53		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Client Sample ID: MW-19B (Continued)
Lab Sample ID: 280-141888-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00046	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.036		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.021		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
Beryllium	0.00035	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	72		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	2.5		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	160		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	630		10	4.7	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-20
Lab Sample ID: 280-141888-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.38		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	39		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00026	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.026		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.029		0.0080	0.0017	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	21.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	63		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	3.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	180		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	710		17	7.8	mg/L	1		SM2540 C	Total/NA

Client Sample ID: MW-17D
Lab Sample ID: 280-141888-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.49		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.13		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	63		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00056	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0072	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.0075	J	0.0080	0.0017	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	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	54		3.0	1.0	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Client Sample ID: MW-17D (Continued)
Lab Sample ID: 280-141888-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	160		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	540		10	4.7	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM2540 C	Total Dissolved Solids	SM18	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
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
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: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-141888-1	MW-17	Water	10/22/20 09:15	10/22/20 14:18	
280-141888-2	MW-18	Water	10/22/20 10:45	10/22/20 14:18	
280-141888-3	MW-19B	Water	10/21/20 15:45	10/22/20 14:18	
280-141888-4	MW-20	Water	10/22/20 12:40	10/22/20 14:18	
280-141888-26	MW-17D	Water	10/22/20 09:20	10/22/20 14:18	

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

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.49**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:08	1

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.38**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:29	1

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.6**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:41	1

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.38**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:46	1

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.49**		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 17:51	1

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

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:12	1
Barium	**0.13**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:12	1
Calcium	**64**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:12	1
Cobalt	**0.00059**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:12	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:12	1
Molybdenum	**0.0074**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:12	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:12	1
Lithium	**0.0088**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:12	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 22:12	1

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0021**	**J**	0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:15	1
Barium	**0.030**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:15	1
Calcium	**35**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:15	1
Cobalt	**0.00020**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:15	1

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

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**0.0022**		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:15	1
Molybdenum	**0.021**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:15	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:15	1
Lithium	**0.035**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:15	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 22:15	1

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:26	1
Barium	**0.071**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:26	1
Calcium	**53**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:26	1
Cobalt	**0.00046**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:26	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:26	1
Molybdenum	**0.036**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:26	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:26	1
Lithium	**0.021**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:26	1
Beryllium	**0.00035**	**J**	0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 22:26	1

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:29	1
Barium	**0.020**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:29	1
Calcium	**39**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:29	1
Cobalt	**0.00026**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:29	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:29	1
Molybdenum	**0.026**		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:29	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:29	1
Lithium	**0.029**		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:29	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 22:29	1

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 20:41	1
Barium	**0.13**		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 20:41	1
Calcium	**63**		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 20:41	1
Cobalt	**0.00056**	**J**	0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 20:41	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 20:41	1
Molybdenum	**0.0072**	**J**	0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 20:41	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 20:41	1
Lithium	**0.0075**	**J**	0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 20:41	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 20:41	1

General Chemistry

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-1
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			10/29/20 19:17	1
Temperature	19.2	HF	1.0	1.0	Degrees C			10/29/20 19:17	1
Chloride	54		3.0	1.0	mg/L			11/16/20 00:40	1
Fluoride	1.1		0.50	0.17	mg/L			11/16/20 00:40	1
Sulfate	160		5.0	1.0	mg/L			11/16/20 00:40	1
Total Dissolved Solids (TDS)	580		10	4.7	mg/L			10/29/20 08:00	1

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			10/29/20 20:00	1
Temperature	20.8	HF	1.0	1.0	Degrees C			10/29/20 20:00	1
Chloride	20		3.0	1.0	mg/L			11/16/20 16:55	1
Fluoride	2.3		0.50	0.17	mg/L			11/16/20 16:55	1
Sulfate	200		50	10	mg/L			11/16/20 17:11	10
Total Dissolved Solids (TDS)	700		17	7.8	mg/L			10/29/20 21:24	1

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			10/29/20 20:04	1
Temperature	21.7	HF	1.0	1.0	Degrees C			10/29/20 20:04	1
Chloride	72		3.0	1.0	mg/L			11/15/20 23:02	1
Fluoride	2.5		0.50	0.17	mg/L			11/15/20 23:02	1
Sulfate	160		5.0	1.0	mg/L			11/15/20 23:02	1
Total Dissolved Solids (TDS)	630		10	4.7	mg/L			10/28/20 11:41	1

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			10/29/20 20:14	1
Temperature	21.8	HF	1.0	1.0	Degrees C			10/29/20 20:14	1
Chloride	63		3.0	1.0	mg/L			11/16/20 15:49	1
Fluoride	3.7		0.50	0.17	mg/L			11/16/20 15:49	1
Sulfate	180		50	10	mg/L			11/16/20 16:05	10
Total Dissolved Solids (TDS)	710		17	7.8	mg/L			10/29/20 21:24	1

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-26
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			11/10/20 23:19	1
Temperature	21.6	HF	1.0	1.0	Degrees C			11/10/20 23:19	1
Chloride	54		3.0	1.0	mg/L			11/16/20 02:19	1
Fluoride	1.1		0.50	0.17	mg/L			11/16/20 02:19	1
Sulfate	160		5.0	1.0	mg/L			11/16/20 02:19	1

General Chemistry (Continued)

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	540		10	4.7	mg/L			10/29/20 08:00	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.205		0.0932	0.0950	1.00	0.101	pCi/L	10/29/20 09:24	11/23/20 11:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.4*		*40 - 110*	*10/29/20 09:24*	*11/23/20 11:10*	*1*

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.109	U	0.0845	0.0851	1.00	0.122	pCi/L	10/29/20 09:24	11/23/20 11:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*71.6*		*40 - 110*	*10/29/20 09:24*	*11/23/20 11:10*	*1*

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.131		0.0822	0.0830	1.00	0.109	pCi/L	10/29/20 09:24	11/23/20 11:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.1*		*40 - 110*	*10/29/20 09:24*	*11/23/20 11:11*	*1*

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.151	U	0.235	0.235	1.00	0.400	pCi/L	10/29/20 15:29	12/04/20 14:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*10/29/20 15:29*	*12/04/20 14:49*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.240	U	0.202	0.204	1.00	0.300	pCi/L	11/02/20 06:26	12/16/20 08:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.3*		*40 - 110*	*11/02/20 06:26*	*12/16/20 08:00*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.304	U	0.342	0.344	1.00	0.563	pCi/L	10/29/20 11:03	11/11/20 12:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.4*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*
Y Carrier	*73.6*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.275	U	0.353	0.354	1.00	0.586	pCi/L	10/29/20 11:03	11/11/20 12:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*71.6*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*
Y Carrier	*69.9*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0718	U	0.265	0.265	1.00	0.490	pCi/L	10/29/20 11:03	11/11/20 12:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.1*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*
Y Carrier	*78.5*		*40 - 110*	*10/29/20 11:03*	*11/11/20 12:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.178	U	0.311	0.311	1.00	0.527	pCi/L	10/30/20 08:51	12/03/20 12:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:26*	*1*
Y Carrier	*82.6*		*40 - 110*	*10/30/20 08:51*	*12/03/20 12:26*	*1*

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.159	U	0.314	0.314	1.00	0.536	pCi/L	11/02/20 07:00	12/15/20 13:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.3*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*
Y Carrier	*77.8*		*40 - 110*	*11/02/20 07:00*	*12/15/20 13:48*	*1*

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

Client Sample ID: MW-17
Date Collected: 10/22/20 09:15
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.508	U	0.354	0.357	5.00	0.563	pCi/L		11/30/20 21:51	1

Client Sample ID: MW-18
Date Collected: 10/22/20 10:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.383	U	0.363	0.364	5.00	0.586	pCi/L		11/30/20 21:51	1

Client Sample ID: MW-19B
Date Collected: 10/21/20 15:45
Date Received: 10/22/20 14:18
Lab Sample ID: 280-141888-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0592	U	0.277	0.278	5.00	0.490	pCi/L		11/30/20 21:51	1

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

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

Client Sample ID: MW-20
Date Collected: 10/22/20 12:40
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.329	U	0.390	0.390	5.00	0.527	pCi/L		12/30/20 13:01	1

Client Sample ID: MW-17D
Date Collected: 10/22/20 09:20
Date Received: 10/22/20 14:18

Lab Sample ID: 280-141888-26
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.399	U	0.373	0.374	5.00	0.536	pCi/L		12/30/20 13:02	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458130
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 18:00	1

Lab Sample ID: LCS 240-457900/2-A
Matrix: Water
Analysis Batch: 458130
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.991		mg/L		99	80 - 120

Lab Sample ID: 280-141888-1 MS
Matrix: Water
Analysis Batch: 458130
Client Sample ID: MW-17
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.49		1.00	1.52		mg/L		103	75 - 125

Lab Sample ID: 280-141888-1 MSD
Matrix: Water
Analysis Batch: 458130
Client Sample ID: MW-17
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.49		1.00	1.50		mg/L		101	75 - 125	1	20

Lab Sample ID: MB 240-457901/1-A
Matrix: Water
Analysis Batch: 458130
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		10/27/20 14:00	10/28/20 15:56	1

Lab Sample ID: LCS 240-457901/2-A
Matrix: Water
Analysis Batch: 458130
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.984		mg/L		98	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458287
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 22:07	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 22:07	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 22:07	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 22:07	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 22:07	1

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

Lab Sample ID: MB 240-457900/1-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 22:07	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 22:07	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 22:07	1

Lab Sample ID: LCS 240-457900/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.982		mg/L		98	80 - 120
Barium	1.00	0.982		mg/L		98	80 - 120
Calcium	25.0	24.4		mg/L		98	80 - 120
Cobalt	0.500	0.495		mg/L		99	80 - 120
Chromium	0.500	0.499		mg/L		100	80 - 120
Molybdenum	0.500	0.480		mg/L		96	80 - 120
Lead	0.500	0.488		mg/L		98	80 - 120
Lithium	0.500	0.476		mg/L		95	80 - 120
Beryllium	0.500	0.498		mg/L		100	80 - 120

Lab Sample ID: 280-141888-2 MS
Matrix: Water
Analysis Batch: 458287

Client Sample ID: MW-18
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0021	J	1.00	0.993		mg/L		99	75 - 125
Barium	0.030		1.00	0.984		mg/L		95	75 - 125
Calcium	35		25.0	57.1		mg/L		88	75 - 125
Cobalt	0.00020	J	0.500	0.485		mg/L		97	75 - 125
Chromium	0.0022		0.500	0.475		mg/L		94	75 - 125
Molybdenum	0.021		0.500	0.499		mg/L		96	75 - 125
Lead	ND		0.500	0.476		mg/L		95	75 - 125
Lithium	0.035		0.500	0.492		mg/L		91	75 - 125
Beryllium	ND		0.500	0.470		mg/L		94	75 - 125

Lab Sample ID: 280-141888-2 MSD
Matrix: Water
Analysis Batch: 458287

Client Sample ID: MW-18
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0021	J	1.00	1.03		mg/L		102	75 - 125	3	20
Barium	0.030		1.00	1.01		mg/L		98	75 - 125	3	20
Calcium	35		25.0	57.9		mg/L		91	75 - 125	1	20
Cobalt	0.00020	J	0.500	0.503		mg/L		101	75 - 125	4	20
Chromium	0.0022		0.500	0.476		mg/L		95	75 - 125	0	20
Molybdenum	0.021		0.500	0.517		mg/L		99	75 - 125	4	20
Lead	ND		0.500	0.488		mg/L		98	75 - 125	3	20
Lithium	0.035		0.500	0.510		mg/L		95	75 - 125	4	20

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

Lab Sample ID: 280-141888-2 MSD
Matrix: Water
Analysis Batch: 458287

Client Sample ID: MW-18
Prep Type: Total Recoverable
Prep Batch: 457900

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	ND		0.500	0.487		mg/L		97	75 - 125	4	20

Lab Sample ID: MB 240-457901/1-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		10/27/20 14:00	10/28/20 19:41	1
Barium	ND		0.0050	0.0022	mg/L		10/27/20 14:00	10/28/20 19:41	1
Calcium	ND		1.0	0.58	mg/L		10/27/20 14:00	10/28/20 19:41	1
Cobalt	ND		0.0010	0.00019	mg/L		10/27/20 14:00	10/28/20 19:41	1
Chromium	ND		0.0020	0.00098	mg/L		10/27/20 14:00	10/28/20 19:41	1
Molybdenum	ND		0.010	0.0011	mg/L		10/27/20 14:00	10/28/20 19:41	1
Lead	ND		0.0010	0.00045	mg/L		10/27/20 14:00	10/28/20 19:41	1
Lithium	ND		0.0080	0.0017	mg/L		10/27/20 14:00	10/28/20 19:41	1
Beryllium	ND		0.0010	0.00031	mg/L		10/27/20 14:00	10/28/20 19:41	1

Lab Sample ID: LCS 240-457901/3-A
Matrix: Water
Analysis Batch: 458287

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 457901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.968		mg/L		97	80 - 120
Barium	1.00	0.970		mg/L		97	80 - 120
Calcium	25.0	23.6		mg/L		94	80 - 120
Cobalt	0.500	0.488		mg/L		98	80 - 120
Chromium	0.500	0.484		mg/L		97	80 - 120
Molybdenum	0.500	0.477		mg/L		95	80 - 120
Lead	0.500	0.487		mg/L		97	80 - 120
Lithium	0.500	0.466		mg/L		93	80 - 120
Beryllium	0.500	0.486		mg/L		97	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-514856/4
Matrix: Water
Analysis Batch: 514856

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

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

Lab Sample ID: LCS 280-516345/30
Matrix: Water
Analysis Batch: 516345

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		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-516788/6
Matrix: Water
Analysis Batch: 516788

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/15/20 11:40	1
Fluoride	ND		0.50	0.17	mg/L			11/15/20 11:40	1
Sulfate	ND		5.0	1.0	mg/L			11/15/20 11:40	1

Lab Sample ID: LCS 280-516788/4
Matrix: Water
Analysis Batch: 516788

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	5.52		mg/L		110	90 - 110
Sulfate	100	97.2		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-516788/5
Matrix: Water
Analysis Batch: 516788

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.4		mg/L		99	90 - 110	1	10
Fluoride	5.00	5.52		mg/L		110	90 - 110	0	10
Sulfate	100	97.0		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-516788/3
Matrix: Water
Analysis Batch: 516788

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	4.17		mg/L		83	50 - 150
Fluoride	0.500	0.570		mg/L		114	50 - 150
Sulfate	5.00	4.51	J	mg/L		90	50 - 150

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-514447/1
Matrix: Water
Analysis Batch: 514447

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/28/20 11:41	1

Lab Sample ID: LCS 280-514447/2
Matrix: Water
Analysis Batch: 514447

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	489		mg/L		98	93 - 110

Method: SM2540 C - Total Dissolved Solids (Continued)

Lab Sample ID: 280-141888-3 DU
Matrix: Water
Analysis Batch: 514447

Client Sample ID: MW-19B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	630			651		mg/L				3	10

Lab Sample ID: MB 280-514623/1
Matrix: Water
Analysis Batch: 514623

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/29/20 08:00	1

Lab Sample ID: LCS 280-514623/2
Matrix: Water
Analysis Batch: 514623

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	512		mg/L		102	93 - 110		

Lab Sample ID: MB 280-514767/2
Matrix: Water
Analysis Batch: 514767

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/29/20 21:24	1

Lab Sample ID: LCS 280-514767/1
Matrix: Water
Analysis Batch: 514767

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	471		mg/L		94	93 - 110		

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-487078/23-A
Matrix: Water
Analysis Batch: 490007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487078

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06058	U	0.0625	0.0627	1.00	0.0978	pCi/L	10/29/20 09:24	11/23/20 14:08	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.2*		*40 - 110*	*10/29/20 09:24*	*11/23/20 14:08*	*1*

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

Lab Sample ID: LCS 160-487078/1-A
Matrix: Water
Analysis Batch: 490007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487078

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.39		1.08	1.00	0.0972	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.4*		*40 - 110*

Lab Sample ID: LCSD 160-487078/2-A
Matrix: Water
Analysis Batch: 490007

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487078

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	11.08		1.15	1.00	0.0994	pCi/L	98	75 - 125	0.31	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*84.2*		*40 - 110*

Lab Sample ID: MB 160-487286/23-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487286

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09006	U	0.116	0.117	1.00	0.193	pCi/L	10/29/20 15:29	12/04/20 16:39	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*10/29/20 15:29*	*12/04/20 16:39*	*1*

Lab Sample ID: LCS 160-487286/1-A
Matrix: Water
Analysis Batch: 490849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487286

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	11.43		1.42	1.00	0.227	pCi/L	101	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*82.4*		*40 - 110*

Lab Sample ID: MB 160-487651/23-A
Matrix: Water
Analysis Batch: 491983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487651

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1130	U	0.158	0.159	1.00	0.268	pCi/L	11/02/20 06:26	12/16/20 08:02	1

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

Lab Sample ID: MB 160-487651/23-A
Matrix: Water
Analysis Batch: 491983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487651

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110	11/02/20 06:26	12/16/20 08:02	1

Lab Sample ID: LCS 160-487651/1-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487651

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.830		1.17	1.00	0.206	pCi/L	87	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	76.5		40 - 110

Lab Sample ID: LCSD 160-487651/2-A
Matrix: Water
Analysis Batch: 492301

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487651

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.65		1.29	1.00	0.252	pCi/L	94	75 - 125	0.34	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	64.2		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-487267/23-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487267

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3473	U	0.324	0.326	1.00	0.524	pCi/L	10/29/20 11:03	11/11/20 12:06	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110	10/29/20 11:03	11/11/20 12:06	1
Y Carrier	79.6		40 - 110	10/29/20 11:03	11/11/20 12:06	1

Lab Sample ID: LCS 160-487267/1-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487267

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.66	8.320		1.01	1.00	0.449	pCi/L	109	75 - 125		

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

Lab Sample ID: LCS 160-487267/1-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487267

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	92.4		40 - 110
Y Carrier	81.5		40 - 110

Lab Sample ID: LCSD 160-487267/2-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487267

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.66	7.688		0.992	1.00	0.506	pCi/L	100	75 - 125	0.31	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	84.2		40 - 110
Y Carrier	77.8		40 - 110

Lab Sample ID: MB 160-487309/23-A
Matrix: Water
Analysis Batch: 490765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487309

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2676	U	0.300	0.301	1.00	0.493	pCi/L	10/30/20 08:51	12/03/20 12:36	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110	10/30/20 08:51	12/03/20 12:36	1
Y Carrier	81.5		40 - 110	10/30/20 08:51	12/03/20 12:36	1

Lab Sample ID: LCS 160-487309/1-A
Matrix: Water
Analysis Batch: 490847

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487309

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.61	8.144		0.997	1.00	0.388	pCi/L	107	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	82.4		40 - 110
Y Carrier	89.0		40 - 110

Lab Sample ID: MB 160-487652/23-A
Matrix: Water
Analysis Batch: 491763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487652

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2612	U	0.338	0.339	1.00	0.562	pCi/L	11/02/20 07:00	12/15/20 13:50	1

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

Lab Sample ID: MB 160-487652/23-A
Matrix: Water
Analysis Batch: 491763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487652

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.4		40 - 110	11/02/20 07:00	12/15/20 13:50	1
Y Carrier	76.3		40 - 110	11/02/20 07:00	12/15/20 13:50	1

Lab Sample ID: LCS 160-487652/1-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.58	6.993		0.948	1.00	0.496	pCi/L	92	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	76.5		40 - 110
Y Carrier	78.5		40 - 110

Lab Sample ID: LCSD 160-487652/2-A
Matrix: Water
Analysis Batch: 491762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487652

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.58	7.860		1.12	1.00	0.717	pCi/L	104	75 - 125	0.42	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	64.2		40 - 110
Y Carrier	74.4		40 - 110

QC Association Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Settling P

Metals

Prep Batch: 457900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total Recoverable	Water	3005A	
280-141888-2	MW-18	Total Recoverable	Water	3005A	
280-141888-3	MW-19B	Total Recoverable	Water	3005A	
280-141888-4	MW-20	Total Recoverable	Water	3005A	
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-141888-1 MS	MW-17	Total Recoverable	Water	3005A	
280-141888-1 MSD	MW-17	Total Recoverable	Water	3005A	
280-141888-2 MS	MW-18	Total Recoverable	Water	3005A	
280-141888-2 MSD	MW-18	Total Recoverable	Water	3005A	

Prep Batch: 457901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-26	MW-17D	Total Recoverable	Water	3005A	
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-457901/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-457901/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 458130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total Recoverable	Water	6010C	457900
280-141888-2	MW-18	Total Recoverable	Water	6010C	457900
280-141888-3	MW-19B	Total Recoverable	Water	6010C	457900
280-141888-4	MW-20	Total Recoverable	Water	6010C	457900
280-141888-26	MW-17D	Total Recoverable	Water	6010C	457901
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6010C	457900
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	6010C	457901
LCS 240-457900/2-A	Lab Control Sample	Total Recoverable	Water	6010C	457900
LCS 240-457901/2-A	Lab Control Sample	Total Recoverable	Water	6010C	457901
280-141888-1 MS	MW-17	Total Recoverable	Water	6010C	457900
280-141888-1 MSD	MW-17	Total Recoverable	Water	6010C	457900

Analysis Batch: 458287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total Recoverable	Water	6020A	457900
280-141888-2	MW-18	Total Recoverable	Water	6020A	457900
280-141888-3	MW-19B	Total Recoverable	Water	6020A	457900
280-141888-4	MW-20	Total Recoverable	Water	6020A	457900
280-141888-26	MW-17D	Total Recoverable	Water	6020A	457901
MB 240-457900/1-A	Method Blank	Total Recoverable	Water	6020A	457900
MB 240-457901/1-A	Method Blank	Total Recoverable	Water	6020A	457901
LCS 240-457900/3-A	Lab Control Sample	Total Recoverable	Water	6020A	457900
LCS 240-457901/3-A	Lab Control Sample	Total Recoverable	Water	6020A	457901
280-141888-2 MS	MW-18	Total Recoverable	Water	6020A	457900
280-141888-2 MSD	MW-18	Total Recoverable	Water	6020A	457900

QC Association Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Settling P

General Chemistry

Analysis Batch: 514447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-3	MW-19B	Total/NA	Water	SM2540 C	
MB 280-514447/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514447/2	Lab Control Sample	Total/NA	Water	SM2540 C	
280-141888-3 DU	MW-19B	Total/NA	Water	SM2540 C	

Analysis Batch: 514623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total/NA	Water	SM2540 C	
280-141888-26	MW-17D	Total/NA	Water	SM2540 C	
MB 280-514623/1	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514623/2	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-2	MW-18	Total/NA	Water	SM2540 C	
280-141888-4	MW-20	Total/NA	Water	SM2540 C	
MB 280-514767/2	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514767/1	Lab Control Sample	Total/NA	Water	SM2540 C	

Analysis Batch: 514856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total/NA	Water	9040B	
280-141888-2	MW-18	Total/NA	Water	9040B	
280-141888-3	MW-19B	Total/NA	Water	9040B	
280-141888-4	MW-20	Total/NA	Water	9040B	
LCS 280-514856/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 516345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-26	MW-17D	Total/NA	Water	9040B	
LCS 280-516345/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 516788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total/NA	Water	9056A	
280-141888-2	MW-18	Total/NA	Water	9056A	
280-141888-2	MW-18	Total/NA	Water	9056A	
280-141888-3	MW-19B	Total/NA	Water	9056A	
280-141888-4	MW-20	Total/NA	Water	9056A	
280-141888-4	MW-20	Total/NA	Water	9056A	
280-141888-26	MW-17D	Total/NA	Water	9056A	
MB 280-516788/6	Method Blank	Total/NA	Water	9056A	
LCS 280-516788/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-516788/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-516788/3	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Settling P

Rad

Prep Batch: 487078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total/NA	Water	PrecSep-21	
280-141888-2	MW-18	Total/NA	Water	PrecSep-21	
280-141888-3	MW-19B	Total/NA	Water	PrecSep-21	
MB 160-487078/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487078/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487078/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-1	MW-17	Total/NA	Water	PrecSep_0	
280-141888-2	MW-18	Total/NA	Water	PrecSep_0	
280-141888-3	MW-19B	Total/NA	Water	PrecSep_0	
MB 160-487267/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487267/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487267/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 487286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-4	MW-20	Total/NA	Water	PrecSep-21	
MB 160-487286/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487286/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 487309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-4	MW-20	Total/NA	Water	PrecSep_0	
MB 160-487309/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487309/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 487651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-26	MW-17D	Total/NA	Water	PrecSep-21	
MB 160-487651/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-487651/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-487651/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 487652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-141888-26	MW-17D	Total/NA	Water	PrecSep_0	
MB 160-487652/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-487652/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-487652/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Client Sample ID: MW-17
Lab Sample ID: 280-141888-1
Date Collected: 10/22/20 09:15
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:08	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:12	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 19:17	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 00:40	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514623	10/29/20 08:00	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.72 mL	1.0 g	487078	10/29/20 09:24	AVB	TAL SL
Total/NA	Analysis	9315		1			490007	11/23/20 11:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.72 mL	1.0 g	487267	10/29/20 11:03	AVB	TAL SL
Total/NA	Analysis	9320		1			488917	11/11/20 12:06	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			490589	11/30/20 21:51	GRW	TAL SL

Client Sample ID: MW-18
Lab Sample ID: 280-141888-2
Date Collected: 10/22/20 10:45
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:29	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:15	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:00	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 16:55	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/16/20 17:11	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	60 mL	100 mL	514767	10/29/20 21:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.43 mL	1.0 g	487078	10/29/20 09:24	AVB	TAL SL
Total/NA	Analysis	9315		1			490007	11/23/20 11:10	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.43 mL	1.0 g	487267	10/29/20 11:03	AVB	TAL SL
Total/NA	Analysis	9320		1			488917	11/11/20 12:06	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			490589	11/30/20 21:51	GRW	TAL SL

Client Sample ID: MW-19B
Lab Sample ID: 280-141888-3
Date Collected: 10/21/20 15:45
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:41	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:26	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:04	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/15/20 23:02	CJ	TAL DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Client Sample ID: MW-19B
Lab Sample ID: 280-141888-3
Date Collected: 10/21/20 15:45
Matrix: Water
Date Received: 10/22/20 14:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514447	10/28/20 11:41	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.99 mL	1.0 g	487078	10/29/20 09:24	AVB	TAL SL
Total/NA	Analysis	9315		1			490007	11/23/20 11:11	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.99 mL	1.0 g	487267	10/29/20 11:03	AVB	TAL SL
Total/NA	Analysis	9320		1			488917	11/11/20 12:06	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			490589	11/30/20 21:51	GRW	TAL SL

Client Sample ID: MW-20
Lab Sample ID: 280-141888-4
Date Collected: 10/22/20 12:40
Matrix: Water
Date Received: 10/22/20 14:18

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	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 18:46	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457900	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 22:29	DSH	TAL CAN
Total/NA	Analysis	9040B		1			514856	10/29/20 20:14	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 15:49	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	516788	11/16/20 16:05	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	60 mL	100 mL	514767	10/29/20 21:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.90 mL	1.0 g	487286	10/29/20 15:29	AVB	TAL SL
Total/NA	Analysis	9315		1			490849	12/04/20 14:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.90 mL	1.0 g	487309	10/30/20 08:51	AVB	TAL SL
Total/NA	Analysis	9320		1			490847	12/03/20 12:26	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493511	12/30/20 13:01	SCB	TAL SL

Client Sample ID: MW-17D
Lab Sample ID: 280-141888-26
Date Collected: 10/22/20 09:20
Matrix: Water
Date Received: 10/22/20 14:18

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	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			458130	10/28/20 17:51	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	457901	10/27/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			458287	10/28/20 20:41	DSH	TAL CAN
Total/NA	Analysis	9040B		1			516345	11/10/20 23:19	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	516788	11/16/20 02:19	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	100 mL	100 mL	514623	10/29/20 08:00	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.23 mL	1.0 g	487651	11/02/20 06:26	AVB	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	491983	12/16/20 08:00	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.23 mL	1.0 g	487652	11/02/20 07:00	AVB	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	491763	12/15/20 13:48	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			493513	12/30/20 13:02	SCB	TAL SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

Laboratory References:

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

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

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	06-30-21
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
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont
Settling P

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Munoz	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.1
Client Contact: Molly Reeves	Phone: 720 273 3136	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 1 of 3
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): PER CONTRACT			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Colorado Settling Pond	SSOW#:			

Analysis Requested

280-141888 Chain of Custody

Preservation Codes:
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)
K - EDTA
L - EDA
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A Total Metals - ETA Canton w/o Se,Cd,Hg,Tl	2540C_Calcd TDS / Method 300 Chloride, fluoride, Sulfate/pH	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis	Total Number of containe	Special Instructions/Note:
			Preservation Code:				D	N	D		
MW-17	10/22/20	0915	G	Water	N	N	1	2	2	5	Metals App III + IV w/o Se, Cd, Hg, Tl, Se, Tl
MW-18	10/22/20	1045	G	Water	N	N	1	2	2	5	
MW-19B	10/21/20	1545	G	Water	N	N	1	2	2	5	
MW-20	10/22/20	1240	G	Water	N	N	1	2	2	5	
MW-25EB	10/21/20	1350	G	W	N	N	1	2	2	5	
MW-26	10/20/20	1220	G	W	N	N	1	2	2	5	
MW-27	10/19/20	1430	G	W	N	N	1	2	2	5	
MW-28	10/20/20	1650	G	W	N	N	1	2	2	5	
MW-1	10/20/20	1305	G	W	N	N	1	2	2	5	
MW-3	10/20/20	1630	G	W	N	N	1	2	2	5	
MW-4	10/21/20	0800	G	W	N	N	1	2	2	5	

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/22/20 1418	HDR		10/22/20 1418	EURO/TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 1.6, 3.1, 1.2, 0.4, 3.6, 0.9, 0.7 IR #11-02

Ver: 01/16/2019

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Emily Munoz	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103098-29694.3
Client Contact: Molly Reeves	Phone: 720 273 3136	E-Mail: Danielle.Harrington@Eurofinset.com		Page: Page 3 of 3
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:
City: Englewood	TAT Requested (days): Per Contract
State, Zip: CO, 80112	
Phone: 734-263-7138(Tel)	PO #: DEN-018
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379
Site: Colorado Landfill Wells + Settling Pond	SSOW#:

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A Total Metals - ETA Canton	2540C_Calcd TDS/ IC Chloride, Fluoride, Sulfate/ pH	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - ETA St. Louis																Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	D	N	D																X	
~~MW-5~~			G	WATER			1	2	2																	
MW-6	10/21/20	1035	G	WATER	N	N	1	2	2																5	Metals: App III + IV w/o Sb, Cd, Hg, Se, Tl
MW-7	10/20/20	1420	G	WATER	N	N	1	2	2																5	
MW-8	10/21/20	0920	G	WATER	N	N	1	2	2																5	
MW-17D	10/22/20	0920	G	WATER	N	N	1	2	2																5	
MW-5	10/22/20	1135	G	WATER	N	N	1																		1	250mL
			G	WATER																						
			G	WATER																						
			G	WATER																						
			G	WATER																						
			G	WATER																						

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time: 10/22/20 1418	Company: HDR	Received by: Lawrence Chang	Date/Time: 10/22/20 1418	Company: EURO/TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544266.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-3
Address: 13715 Rider Trail North, ,	Due Date Requested: 11/17/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Settling P	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Ra226Ra228_GFPC/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-17 (280-141888-1)	10/22/20	09:15 Mountain		Water			X	X	X	2	
MW-18 (280-141888-2)	10/22/20	10:45 Mountain		Water			X	X	X	2	
MW-19B (280-141888-3)	10/21/20	15:45 Mountain		Water			X	X	X	2	
MW-20 (280-141888-4)	10/22/20	12:40 Mountain		Water			X	X	X	2	
MW-17D (280-141888-26)	10/22/20	09:20 Mountain		Water			X	X	X	2	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/23/2020 1400		FedEx		
2	FedEx			[signature]	10/24/20 08:35	ETASTL
3						

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

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-544248.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-141888-3
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/13/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont Settling P	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S81

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-17 (280-141888-1)	10/22/20	09:15 Mountain		Water			X	X	2	Use Collision Cell
MW-18 (280-141888-2)	10/22/20	10:45 Mountain		Water			X	X	2	Use Collision Cell
MW-19B (280-141888-3)	10/21/20	15:45 Mountain		Water			X	X	2	Use Collision Cell
MW-20 (280-141888-4)	10/22/20	12:40 Mountain		Water			X	X	2	Use Collision Cell
MW-17D (280-141888-26)	10/22/20	09:20 Mountain		Water			X	X	2	Use Collision Cell

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/25/2020 1330		[signature]	10-24-20 940	TMC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client ETA Denver Site Name _____ Cooler unpacked by: MMT

Cooler Received on 10-24-20 Opened on 10-24-20

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

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

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

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. 10.8 °C Corrected Cooler Temp. 11.7 °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
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC907861**
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

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

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

Concerning _____

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

19. SAMPLE CONDITION

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

20. SAMPLE PRESERVATION

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

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-3

Login Number: 141888
List Number: 1
Creator: Pottruff, Reed W

List Source: Eurofins TestAmerica, Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-141888-3

Login Number: 141888
List Number: 3
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/24/20 12:26 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-141888-3
Project/Site: Xcel Energy GW CCR Monitoring - Valmont Settling P

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
280-141888-1	MW-17	75.4
280-141888-2	MW-18	71.6
280-141888-3	MW-19B	80.1
280-141888-4	MW-20	72.1
280-141888-26	MW-17D	73.3
LCS 160-487078/1-A	Lab Control Sample	92.4
LCS 160-487286/1-A	Lab Control Sample	82.4
LCS 160-487651/1-A	Lab Control Sample	76.5
LCSD 160-487078/2-A	Lab Control Sample Dup	84.2
LCSD 160-487651/2-A	Lab Control Sample Dup	64.2
MB 160-487078/23-A	Method Blank	81.2
MB 160-487286/23-A	Method Blank	85.3
MB 160-487651/23-A	Method Blank	72.4

Tracer/Carrier Legend

Ba = Ba 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)
280-141888-1	MW-17	75.4	73.6
280-141888-2	MW-18	71.6	69.9
280-141888-3	MW-19B	80.1	78.5
280-141888-4	MW-20	72.1	82.6
280-141888-26	MW-17D	73.3	77.8
LCS 160-487267/1-A	Lab Control Sample	92.4	81.5
LCS 160-487309/1-A	Lab Control Sample	82.4	89.0
LCS 160-487652/1-A	Lab Control Sample	76.5	78.5
LCSD 160-487267/2-A	Lab Control Sample Dup	84.2	77.8
LCSD 160-487652/2-A	Lab Control Sample Dup	64.2	74.4
MB 160-487267/23-A	Method Blank	81.2	79.6
MB 160-487309/23-A	Method Blank	85.3	81.5
MB 160-487652/23-A	Method Blank	72.4	76.3

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 280-142101-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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

Attn: Molly Reeves

Danielle Harrington

Authorized for release by:
11/27/2020 9:30:55 AM

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

LINKS

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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
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Job ID: 280-142101-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Valmont

Report Number: 280-142101-1

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 was 5.8 C.

Please note, limited sample volume was received for this sample. The laboratory split off volume for Metals and the rest of the volume will be for pH, Total Dissolved Solids, Chloride Fluoride and Sulfate.

TOTAL RECOVERABLE METALS - METHOD 6010C/6020A

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

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

TOTAL MERCURY

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

GENERAL CHEMISTRY- VARIOUS

The holding time for Chloride, Fluoride, and Sulfate by method 9056A for sample MW-5 expired prior to analysis. The sample was loaded onto the instrument within holding time but due to the run time of the instrument the sample injected outside of holding time. The sample was analyzed approximately 11 hours outside of holding time.

Sample MW-5 (280-142101-1) was prepped or analyzed at a dilution for various analyses. The reporting limits have been adjusted accordingly.

The Sulfate sample duplicate analysis data associated with QC batch 280-517909 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-5
Lab Sample ID: 280-142101-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00089	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.021		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	83		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00080	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0014	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0028	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00084	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0035	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.069		0.0080	0.0017	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	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	44	H	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.23	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	570	H	50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1400		20	9.4	mg/L	1		SM2540 C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
SM2540 C	Total Dissolved Solids	SM18	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN

Protocol References:

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

Laboratory References:

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

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

Sample Summary

Client: HDR Inc
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142101-1	MW-5	Water	10/26/20 12:00	10/29/20 09:30	

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

Client Sample ID: MW-5
Date Collected: 10/26/20 12:00
Date Received: 10/29/20 09:30
Lab Sample ID: 280-142101-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.9**		0.10	0.023	mg/L		11/05/20 14:00	11/06/20 13:07	1

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

Client Sample ID: MW-5
Date Collected: 10/26/20 12:00
Date Received: 10/29/20 09:30
Lab Sample ID: 280-142101-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/05/20 14:00	11/06/20 16:18	1
Arsenic	**0.00089**	**J**	0.0050	0.00075	mg/L		11/05/20 14:00	11/06/20 16:18	1
Barium	**0.021**		0.0050	0.0022	mg/L		11/05/20 14:00	11/06/20 16:18	1
Beryllium	ND		0.0010	0.00031	mg/L		11/05/20 14:00	11/06/20 16:18	1
Calcium	**83**		1.0	0.58	mg/L		11/05/20 14:00	11/06/20 16:18	1
Cadmium	ND		0.0010	0.00020	mg/L		11/05/20 14:00	11/06/20 16:18	1
Cobalt	**0.00080**	**J**	0.0010	0.00019	mg/L		11/05/20 14:00	11/06/20 16:18	1
Chromium	**0.0014**	**J**	0.0020	0.00098	mg/L		11/05/20 14:00	11/06/20 16:18	1
Molybdenum	**0.0028**	**J**	0.010	0.0011	mg/L		11/05/20 14:00	11/06/20 16:18	1
Lead	**0.00084**	**J**	0.0010	0.00045	mg/L		11/05/20 14:00	11/06/20 16:18	1
Selenium	**0.0035**	**J**	0.0050	0.00089	mg/L		11/05/20 14:00	11/06/20 16:18	1
Thallium	ND		0.0010	0.00020	mg/L		11/05/20 14:00	11/06/20 16:18	1
Lithium	**0.069**		0.0080	0.0017	mg/L		11/05/20 14:00	11/06/20 16:18	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-5
Date Collected: 10/26/20 12:00
Date Received: 10/29/20 09:30
Lab Sample ID: 280-142101-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/05/20 12:00	11/05/20 19:31	1

General Chemistry

Client Sample ID: MW-5
Date Collected: 10/26/20 12:00
Date Received: 10/29/20 09:30
Lab Sample ID: 280-142101-1
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			11/24/20 16:36	1
Temperature	**20.3**	**HF**	1.0	1.0	Degrees C			11/24/20 16:36	1
Chloride	**44**	**H**	3.0	1.0	mg/L			11/24/20 01:41	1
Fluoride	**0.23**	**J H**	0.50	0.17	mg/L			11/24/20 01:41	1
Sulfate	**570**	**H**	50	10	mg/L			11/24/20 01:57	10
Total Dissolved Solids (TDS)	**1400**		20	9.4	mg/L			11/01/20 15:16	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-459424/1-A
Matrix: Water
Analysis Batch: 459674

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 459424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/05/20 14:00	11/06/20 09:10	1

Lab Sample ID: LCS 240-459424/2-A
Matrix: Water
Analysis Batch: 459674

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 459424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.986		mg/L		99	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-459424/1-A
Matrix: Water
Analysis Batch: 459701

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 459424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/05/20 14:00	11/06/20 13:38	1
Arsenic	ND		0.0050	0.00075	mg/L		11/05/20 14:00	11/06/20 13:38	1
Barium	ND		0.0050	0.0022	mg/L		11/05/20 14:00	11/06/20 13:38	1
Beryllium	ND		0.0010	0.00031	mg/L		11/05/20 14:00	11/06/20 13:38	1
Calcium	ND		1.0	0.58	mg/L		11/05/20 14:00	11/06/20 13:38	1
Cadmium	ND		0.0010	0.00020	mg/L		11/05/20 14:00	11/06/20 13:38	1
Cobalt	ND		0.0010	0.00019	mg/L		11/05/20 14:00	11/06/20 13:38	1
Chromium	ND		0.0020	0.00098	mg/L		11/05/20 14:00	11/06/20 13:38	1
Molybdenum	ND		0.010	0.0011	mg/L		11/05/20 14:00	11/06/20 13:38	1
Lead	ND		0.0010	0.00045	mg/L		11/05/20 14:00	11/06/20 13:38	1
Selenium	ND		0.0050	0.00089	mg/L		11/05/20 14:00	11/06/20 13:38	1
Thallium	ND		0.0010	0.00020	mg/L		11/05/20 14:00	11/06/20 13:38	1
Lithium	ND		0.0080	0.0017	mg/L		11/05/20 14:00	11/06/20 13:38	1

Lab Sample ID: LCS 240-459424/3-A
Matrix: Water
Analysis Batch: 459701

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 459424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0902		mg/L		90	80 - 120
Arsenic	1.00	0.960		mg/L		96	80 - 120
Barium	1.00	0.958		mg/L		96	80 - 120
Beryllium	0.500	0.455		mg/L		91	80 - 120
Calcium	25.0	24.4		mg/L		98	80 - 120
Cadmium	0.500	0.473		mg/L		95	80 - 120
Cobalt	0.500	0.492		mg/L		98	80 - 120
Chromium	0.500	0.486		mg/L		97	80 - 120
Molybdenum	0.500	0.474		mg/L		95	80 - 120
Lead	0.500	0.484		mg/L		97	80 - 120
Selenium	1.00	0.946		mg/L		95	80 - 120
Thallium	1.00	0.921		mg/L		92	80 - 120
Lithium	0.500	0.458		mg/L		92	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-459429/1-A
Matrix: Water
Analysis Batch: 459643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459429

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/05/20 12:00	11/05/20 15:05	1

Lab Sample ID: LCS 240-459429/2-A
Matrix: Water
Analysis Batch: 459643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 459429

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.12		ug/L		102	80 - 120

Method: 9040B - pH

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

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
Fluoride	5.00	4.75		mg/L		95	90 - 110	0	10
Sulfate	100	93.5		mg/L		93	90 - 110	1	10

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

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

Method: SM2540 C - Total Dissolved Solids

Lab Sample ID: MB 280-514993/3
Matrix: Water
Analysis Batch: 514993

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			11/01/20 15:16	1

Lab Sample ID: LCS 280-514993/1
Matrix: Water
Analysis Batch: 514993

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	482		mg/L		96	93 - 110

Lab Sample ID: LCSD 280-514993/2
Matrix: Water
Analysis Batch: 514993

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	503		mg/L		100	93 - 110	4	20

Metals

Prep Batch: 459424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total Recoverable	Water	3005A	
MB 240-459424/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-459424/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-459424/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 459429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total/NA	Water	7470A	
MB 240-459429/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-459429/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 459643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total/NA	Water	7470A	459429
MB 240-459429/1-A	Method Blank	Total/NA	Water	7470A	459429
LCS 240-459429/2-A	Lab Control Sample	Total/NA	Water	7470A	459429

Analysis Batch: 459674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total Recoverable	Water	6010C	459424
MB 240-459424/1-A	Method Blank	Total Recoverable	Water	6010C	459424
LCS 240-459424/2-A	Lab Control Sample	Total Recoverable	Water	6010C	459424

Analysis Batch: 459701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total Recoverable	Water	6020A	459424
MB 240-459424/1-A	Method Blank	Total Recoverable	Water	6020A	459424
LCS 240-459424/3-A	Lab Control Sample	Total Recoverable	Water	6020A	459424

General Chemistry

Analysis Batch: 514993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total/NA	Water	SM2540 C	
MB 280-514993/3	Method Blank	Total/NA	Water	SM2540 C	
LCS 280-514993/1	Lab Control Sample	Total/NA	Water	SM2540 C	
LCSD 280-514993/2	Lab Control Sample Dup	Total/NA	Water	SM2540 C	

Analysis Batch: 517909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total/NA	Water	9056A	
280-142101-1	MW-5	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	

Analysis Batch: 518121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142101-1	MW-5	Total/NA	Water	9040B	
LCS 280-518121/5	Lab Control Sample	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

Client Sample ID: MW-5
Date Collected: 10/26/20 12:00
Date Received: 10/29/20 09:30

Lab Sample ID: 280-142101-1
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	459424	11/05/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			459674	11/06/20 13:07	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	459424	11/05/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			459701	11/06/20 16:18	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	459429	11/05/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			459643	11/05/20 19:31	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518121	11/24/20 16:36	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	517909	11/24/20 01:41	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	517909	11/24/20 01:57	CJ	TAL DEN
Total/NA	Analysis	SM2540 C		1	50 mL	100 mL	514993	11/01/20 15:16	SVC	TAL DEN

Laboratory References:

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

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-142101-1
Project/Site: Xcel Energy GW CCR Monitoring - Valmont

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
A2LA	Dept. of Defense ELAP	2907.01	10-31-21

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	06-30-21
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	06-05-21
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

Eurofins TestAmerica, Denver 6.1
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler: Tara Kent	Lab PM: Bandy, Darlene F Danielle	Carrier Tracking No(s):	COC No: 280-9[illegible]
Client Contact: Anna Lundin Molly Reeves	Phone: 7209337496	E-Mail: darlene.bandy@testamericainc.com		Page: Page
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blvd Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days):			
State, Zip: CO, 80112				
Phone: 734-263-7138(Tel)	PO #: DEN-018			
Email: anna.lundin@hdrinc.com Molly.Reeves@	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - ~~Hayden~~ JP Valmont	Project #: 28014377			
Site: Colorado	SSOW#:			

280-142101 Chain of Custody

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd - Total Dissolved Solids (TDS)	9040B, 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	6010C, 6020A	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	D	D		
MW-5	10/26/20	1200	G	Water	N	N							~250mL submitted in unpreserved 1L email Molly.Reeves@hdrinc.com for App III/IV Sampling/analysis needs
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Tara Kent	29 Oct 2020 930	HDR	[signature]	10/29/2020 0930	ETHDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 6.1 3.4, CF(-0.3), IR#11 10/29/20 NC
PVP 10/29/20

Ver: 01/16/2019

132|14.1

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-545369.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-142101-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 11/23/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Valmont	Project #: 28014379			
Site: Xcel Energy CCR - Valmont Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

W
25

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-5 (280-142101-1)	10/26/20	12:00 Mountain		Water			X	X	X	1	Use Collision Cell

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Scott R Hall	11/2/20 1614	ETA Denver		11-3-20 1000	TAL C
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.: ~~1510402~~ 1510403	Cooler Temperature(s) °C and Other Remarks:

SRH 11/2/20

Ver: 01/16/2019

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

Client EA Denver Site Name _____ Cooler unpacked by:

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

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

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

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

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

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. 13.2 °C Corrected Cooler Temp. 14.1 °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~~)
   -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? ● ⬅ Larger than this. Yes (~~No~~) NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (~~No~~)
17. Was a LL Hg or Me Hg trip blank present? _____ Yes (~~No~~)

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

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

Concerning _____

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

19. SAMPLE CONDITION

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

20. SAMPLE PRESERVATION

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

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-142101-1

Login Number: 142101
List Number: 1
Creator: Kramer, Julieann L

List Source: Eurofins TestAmerica, Denver

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