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

Pawnee Station

Public Service Company of Colorado Energy

January 29, 2021

Table of Contents

List of Tables

List of Figures

List of Appendices

Table of Abbreviations and Acronyms

Abbreviation	Definition
BTV	Background threshold value
CCR	Coal combustion residuals
COI	Constituent of interest
EPA	Environmental Protection Agency
GPS	Groundwater protection standard
LCL	Lower confidence limit
LCS	Laboratory control samples
MS/MSD	Matrix spike/ 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
UPL	Upper prediction limit

Certification

2020 Groundwater Monitoring Annual Report for Pawnee 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					
§ 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:		**North Landfill Status**	**Former Bottom Ash Storage Pond Status**	**Former Ash Water Recovery Pond**	**East Landfill 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	Assessment Monitoring Program	Detection 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 and Evaluation of Potential Remedies	Detection 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	Yes but an ASD determined from another source
§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.	• PNMW-1B – chloride, sulfate, TDS • PNMW-15 – boron, calcium, pH, sulfate, TDS • PNMW-16 - boron, calcium, pH, sulfate, TDS	• PNMW-21 - chloride, sulfate, TDS • PNMW-22 – fluoride, sulfate • PNMW-23 – sulfate, TDS	• PNMW-18 - sulfate, TDS • PNMW-20 – boron, calcium, chloride, sulfate, TDS	• PNMW-21 - TDS • PNMW-22 – sulfate, TDS • PNMW-23 – sulfate, TDS
§257.90(e)(6)(iii)(B)	Provide the date when the assessment monitoring program was initiated for the CCR unit.	January 15, 2018	August 6, 2019	August 6, 2019	N/A
§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	Yes	N/A
§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.	• PNMW-15 – lithium • PNMW-16 - lithium	• PNMW-21 – lithium • PNMW-22 - lithium	• PNMW-20 – lithium	N/A
§257.90(e)(6)(iv) (B)	Provide the date when the assessment of corrective measures was initiated for the CCR unit.	April 3, 2019	August 6, 2020	August 6, 2020	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	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.	August 30, 2019	Draft complete, will be published in early 2021	Draft complete, will be published in early 2021	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	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	Ongoing – Source Removal complete in March 2017	Ongoing – Source Removal complete in April 2017	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. Pawnee Station, located in Morgan County, Colorado (**Figure 1**), is owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy Company. Pawnee Station has two existing CCR units subject to the CCR Rule: the North CCR Landfill and the East CCR Landfill (**Figure 2**). In addition, Pawnee Station has two closed CCR units, the former Bottom Ash Storage Pond (BASP) and the former Ash Water Recovery Pond (AWRP) (**Figure 2**). The BASP and AWRP were both physically closed in 2017 by removal of CCR, with ongoing groundwater monitoring. The East CCR Landfill was constructed in 2018 in the same footprint as the former BASP, and ash was initially placed in the East CCR Landfill on July 8, 2019.

In 2020, groundwater monitoring was conducted at Pawnee to collect assessment monitoring samples at the North CCR Landfill, the former AWRP, and the former BASP as specified under Part 257.95. The East CCR Landfill was put into operation in July 2019 and detection monitoring initiated in November 2019 and continued in 2020. This Annual Groundwater Monitoring Report presents the sampling and analysis completed in 2020:

- The status of the groundwater monitoring program for the North CCR Landfill at the end of 2020 is assessment monitoring, and evaluation of potential remedies.
- The status of the groundwater monitoring program for the former BASP at the end of 2020 is assessment monitoring and evaluation of potential remedies.
- The status of the groundwater monitoring program for the former AWRP at the end of 2020 is assessment monitoring and evaluation of potential remedies.
- The status of the groundwater monitoring program for the East CCR Landfill at the end of 2020 is detection monitoring.

2.0 Facility Description

Pawnee Station is a coal-fired, steam turbine electric generating station. The fuel source for the existing coal-fired units is sub-bituminous, low-sulfur coal from the Eagle Butte Mine near Gillette, Wyoming. In 2020 Pawnee Station had one operating unlined landfill unit, the North CCR Landfill, used for storage of CCR that has been in use since operations began in 1981 (**Figure 2).** Landfill operations consist primarily of management of CCR bottom ash and fly ash and disposal of minor amounts of other approved non-CCR waste. The North CCR landfill is operated as a single cell approximately 16 acres in area. A second landfill unit, the East CCR Landfill, was constructed in 2018 with a CCR compliant composite liner system and was put into operation with the first ash placement July 8, 2019. The East CCR Landfill is located in the footprint of the former BASP (**Figure 2**).

The former BASP was located in the southeast portion of the site and was included in the original construction of the Pawnee Station in 1980 and encompasses 13.1 acres. The pond was approximately 950 feet long by 600 feet wide and had a maximum depth of 23 feet. The

pond was constructed with a composite liner system consisting of a synthetic liner over approximately 2 feet of clay. Historically, the BASP accepted sluiced bottom ash from the boiler and cooling water blowdown and discharged to the AWRP. The BASP was physically closed by final removal of all CCR and liner material, which was completed in March 2017; completion of CCR removal was certified by a Professional Engineer.

Included in the original site construction, the former AWRP was built in 1980, encompasses 0.92 acres, and is located immediately northwest of the former BASP (**Figure 2**). The pond is approximately 400 feet long by 100 feet wide and has a maximum depth of 12 feet. The pond was constructed with a composite liner system consisting of a synthetic liner over approximately 2 feet of clay. Historically, the influent water was from the BASP and the effluent water was recirculated to the plant to sluice bottom ash from the boiler. The AWRP was taken out of service with the construction of the Ash Water Recycle Pond in 2005. The AWRP was physically closed by final removal of all CCR and liner material, which was completed in April 2017; completion of CCR removal was certified by a Professional Engineer.

2.1 Hydrogeology

The stratigraphic units present at the Pawnee Station include bedrock of the Pierre Shale, overlain by residual soil/transition zone bedrock derived from in-situ weathering of the Pierre Shale, which is also referred to as sandy silt deposits. The residual soil is overlain by dune sand deposits at the surface. The residual soil unit is laterally continuous and varies in thickness from approximately 8 to 45 feet. The transition zone bedrock is typically less than 5 feet (1.5 m) thick and consists of friable, blocky siltstone. The transition zone bedrock is confined below by competent bedrock of the Pierre Shale. Dune sand overlies the residual soil and ranges in thickness from 8 to 70 feet (2.4 to 21 m). The lithology is the same under all of the CCR units.

Saturated conditions occur at the base of the residual soil within the transition zone bedrock. The groundwater in this zone is perched on top of competent, low permeability, Pierre Shale. Regional groundwater flow is generally to the northeast across the site towards the South Platte River. Groundwater flow under the CCR units is to the east.

2.2 Monitoring Well Network

2.2.1 North CCR Landfill

Six monitoring wells located around the perimeter of the landfill are monitored for compliance with the CCR Rule. Groundwater flows east under the landfill; therefore, monitoring wells PNMW-2B, PNMW-13, and PNMW-14 are upgradient of the landfill, and wells PNMW-1B, PNMW-15, and PNMW-16 are located downgradient of the landfill waste boundary as described in the Pawnee Station Groundwater Monitoring System Certification (HDR, 2018). The well locations are shown on **Figure 2**.

Existing monitoring wells P6, P7, and P18B were sampled as part of the assessment of corrective measures for the North CCR Landfill. These wells are not currently part of the certified CCR monitoring network but are sampled to delineate the extents of the groundwater protection standard (GPS) exceedances and monitor the downgradient station property boundary in compliance with CCR Rule § 257.95(g)(1) (**Figure 2**). No landfill monitoring wells were installed or abandoned in 2020.

2.2.2 Bottom Ash Storage Pond

Four wells are located at the former BASP for CCR compliance. Groundwater flows east under the former pond. Therefore, well PNMW-17 was located upgradient of the BASP and downgradient of the North CCR Landfill. Monitoring wells PNMW-21, PNMW-22, and PNMW-23 were located along the perimeter of the east side of the pond to serve as downgradient wells at the waste boundary (**Figure 2**). While water quality at PNMW-17 does not represent site-wide background water quality because of its location downgradient of the North CCR Landfill, it does represent water quality upgradient of the BASP and therefore the background water quality for that CCR unit. The BASP monitoring wells were installed in 2017, as described in the Groundwater Monitoring System Certification report (HDR, 2018). No monitoring wells were installed or abandoned in 2020 for the BASP.

2.2.3 Ash Water Recovery Pond

Four wells were sited at the former AWRP for CCR compliance. Groundwater flows east under the pond. Therefore, well PNMW-17 serves as the upgradient well for both the BASP and the AWRP. While water quality at PNMW-17 does not represent site-wide background water quality because of its location downgradient of the North CCR Landfill, it does represent water quality upgradient of the AWRP and therefore the background water quality for that CCR unit. Monitoring wells PNMW-18, PNMW-19, and PNMW-20 were located along the perimeter of the east side of the pond to serve as downgradient wells at the waste boundary (**Figure 2**). The AWRP monitoring wells were installed in 2017, as described in the Groundwater Monitoring System Certification report (HDR, 2018). No monitoring wells were installed or abandoned in 2020 for the AWRP.

2.2.4 East CCR Landfill

The East CCR Landfill is within the footprint of the former BASP. Removal of CCR and all areas affected by releases of CCR at the BASP was completed by March 31, 2017. The East CCR Landfill was constructed in 2018 and took first receipt of CCR on July 8, 2019. Therefore, the monitoring wells are the same for the East CCR Landfill as the BASP. Groundwater flows east under the East CCR Landfill. Four wells are located at the East CCR Landfill for CCR compliance. Well MW-17 was located upgradient of the East CCR Landfill and downgradient of the North CCR Landfill. Monitoring wells MW-21, MW-22, and MW-23 were located along the east side of the landfill waste boundary to serve as downgradient wells (**Figure 2**). While water quality at PNMW-17 does not represent site-wide background water quality because of its location downgradient of the North CCR Landfill, it does represent water quality upgradient of the East CCR Landfill and therefore the background water quality for that CCR unit. The East CCR Landfill monitoring wells were installed in 2017, as described in the Groundwater Monitoring System Certification report (HDR, 2018). No monitoring wells were installed or abandoned in 2020 for the East CCF Landfill.

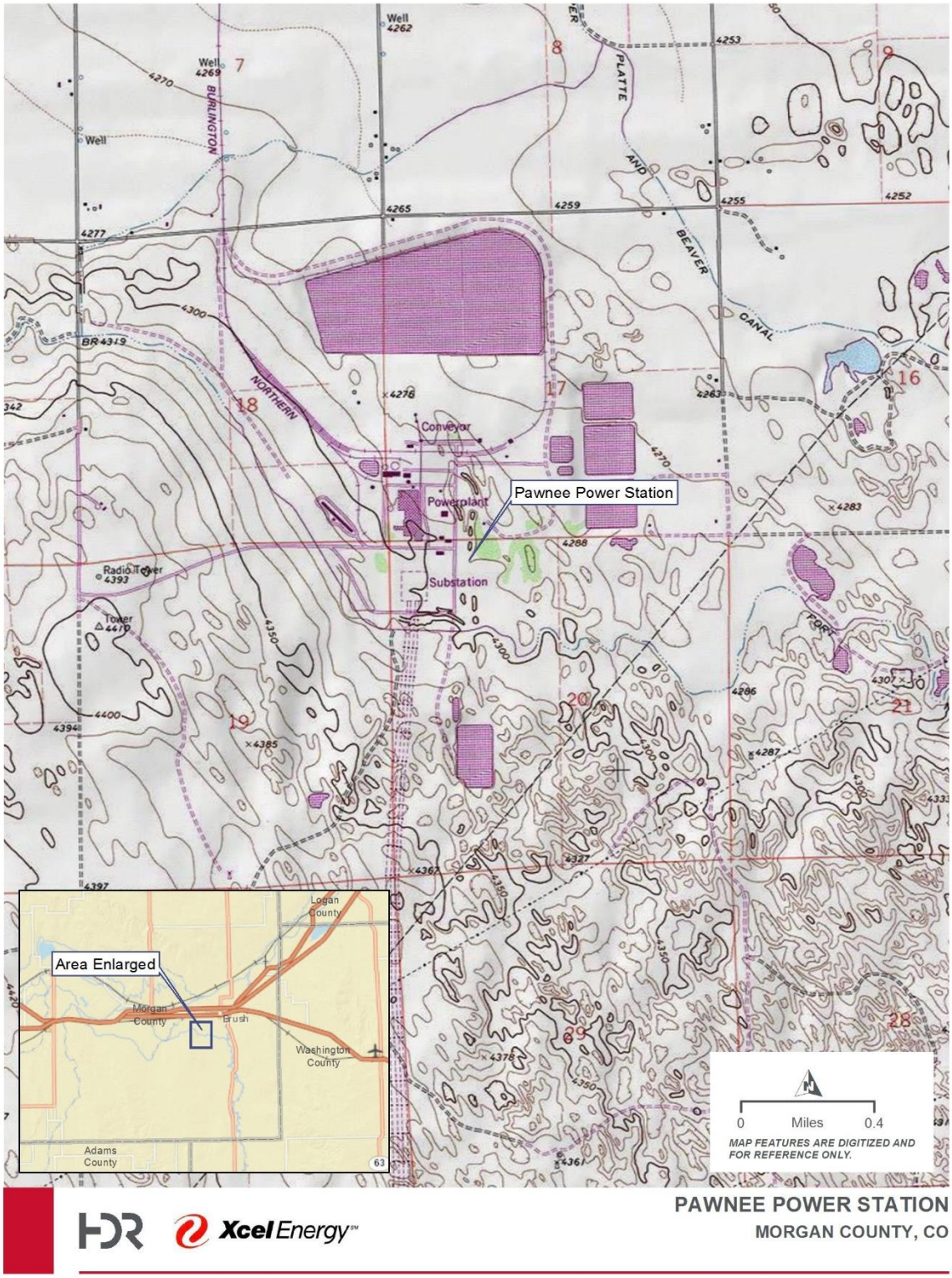

Figure 1. Vicinity map for Pawnee Station.

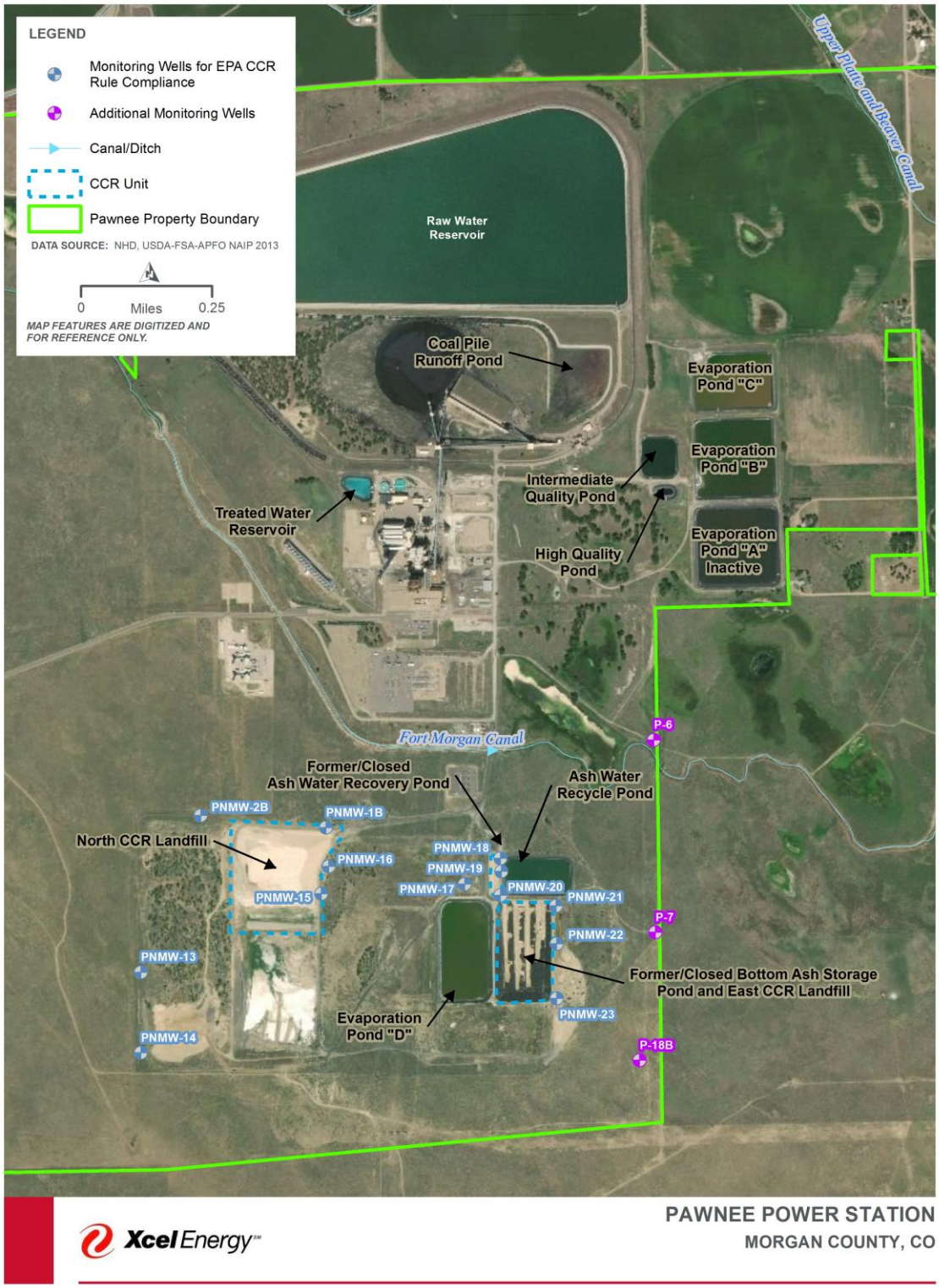

Figure 2. Pawnee Station – CCR units and monitoring well location map.

3.0 Monitoring

3.1 Frequency

3.1.1 North CCR Landfill

Assessment monitoring continued in 2020 for the North CCR Landfill. A semi-annual assessment monitoring event was completed February 3-4, 2020 to sample all of the monitoring wells around the landfill for all Appendix III and IV constituents plus TSS (**Table 1**) except mercury, which was not detected in the last annual assessment monitoring event. Samples were collected from the certified monitoring network of wells (PNMW-1B, PNMW-2B, PNMW-13, PNMW-14, PNMW-15, and PNMW-16), plus from wells P6, P7, and P18B. Wells P6, P7, and P18B were sampled to better delineate the extents of the GPS exceedances and monitor the downgradient property boundary in compliance with CCR Rule § 257.95(g)(1). **Table 2** provides the well identification, 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))). **Appendix A** provides the distinctions for the different types of monitoring events and the CCR Rule Part under which the monitoring event was conducted.

On July 28 – August 3, 2020, annual assessment monitoring samples were collected from the North CCR Landfill monitoring wells. Samples were analyzed for all Appendix III and Appendix IV COIs plus TSS. Samples were collected from the certified monitoring network of wells (PNMW-1B, PNMW-2B, PNMW-13, PNMW-14, PNMW-15, and PNMW-16), plus from wells P6, P7, and P18B (**Table 2**)**.** All Appendix IV constituents were detected in at least one well except for mercury.

Table 1. Groundwater quality parameters	
Appendix III Constituents for Detection Monitoring	**Appendix IV Constituents for Assessment Monitoring**
Boron	Antimony
Calcium	Arsenic
Chloride	Barium
Fluoride	Beryllium
pH	Cadmium
Sulfate	Chromium
Total Dissolved Solids (TDS)	Cobalt
Additional Parameters	Fluoride
Total Suspended Solids (TSS)	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
	Radium 226 and 228 combined

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

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
PNMW-1B	Downgradient	February 4, 2020	Semi-Annual Assessment Monitoring
		July 28, 2020	Annual Assessment Monitoring
PNMW-2B	Upgradient / Background	February 4, 2020	Semi-Annual Assessment Monitoring
		July 28, 2020	Annual Assessment Monitoring
PNMW-13	Upgradient / Background	February 3, 2020	Semi-Annual Assessment Monitoring
		July 30, 2020	Annual Assessment Monitoring
PNMW-14	Upgradient / Background	February 3, 2020	Semi-Annual Assessment Monitoring
		July 28, 2020	Annual Assessment Monitoring
PNMW-15	Downgradient	February 4, 2020	Semi-Annual Assessment Monitoring
		August 3, 2020	Annual Assessment Monitoring
PNMW-16	Downgradient	February 3, 2020	Semi-Annual Assessment Monitoring
		July 29, 2020	Annual Assessment Monitoring
P6*	Downgradient	February 3, 2020	Semi-Annual Assessment Monitoring
		July 31, 2020	Annual Assessment Monitoring
P7*	Downgradient	February 3, 2020	Semi-Annual Assessment Monitoring
		July 30, 2020	Annual Assessment Monitoring
P18B*	Downgradient	February 3, 2020	Semi-Annual Assessment Monitoring
		July 31, 2020	Annual Assessment Monitoring

*Currently not included in the certified network of wells. Data from these new wells is useful to guide decision making and are currently being evaluated for inclusion into the certified network.

3.1.2 Bottom Ash Storage Pond

Assessment monitoring continued in 2020 for the former BASP. An annual assessment monitoring event was completed May 4-5, 2020 to sample all of the monitoring wells around the BASP for all Appendix III and IV constituents plus TSS (**Table 1**). Samples were collected from the certified monitoring network of wells (PNMW-17, PNMW-21, PNMW-22, and PNMW-23). All Appendix IV constituents were detected in at least one well except for mercury. **Table 3** provides the well identification, 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))). **Appendix A** provides the distinctions for the different types of monitoring events and the CCR Rule Part under which the monitoring event was conducted.

On November 3-4, 2020, semi-annual assessment monitoring samples were collected from the BASP 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 (PNMW-17, PNMW-21, PNMW-22, and PNMW-23) (**Table 3**).

Table 3. Number and dates of groundwater samples collected for each well at the (closed) Bottom Ash Storage Pond and the required monitoring programs (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
PNMW-17	Upgradient / Background	May 4, 2020	Annual Assessment Monitoring
		November 3, 2020	Semi-Annual Assessment Monitoring
PNMW-21	Downgradient	May 4, 2020	Annual Assessment Monitoring
		November 4, 2020	Semi-Annual Assessment Monitoring
PNMW-22	Downgradient	May 5, 2020	Annual Assessment Monitoring
		November 4, 2020	Semi-Annual Assessment Monitoring
PNMW-23	Downgradient	May 5, 2020	Annual Assessment Monitoring
		November 3, 2020	Semi-Annual Assessment Monitoring

3.1.3 Ash Water Recovery Pond

Assessment monitoring continued in 2020 for the AWRP. An annual assessment monitoring event was completed May 4-6, 2020 to sample all of the monitoring wells around the AWRP for all Appendix III and IV constituents plus TSS (**Table 1**). Samples were collected from the certified monitoring network of wells (PNMW-17, PNMW-18, PNMW-19, and PNMW-20). All Appendix IV constituents were detected in at least one well except for mercury. **Table 4** provides the well identification, 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))). **Appendix A** provides the distinctions for the different types of monitoring events and the CCR Rule Part under which the monitoring event was conducted.

On November 3-5, 2020, semi-annual assessment monitoring samples were collected from the AWRP 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 (PNMW-17, PNMW-18, PNMW-19, and PNMW-20) (**Table 4**).

Table 4. Number and dates of groundwater samples collected for each well at the (closed) Ash Water Recycle Pond and the required monitoring programs (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
PNMW-17	Upgradient / Background	May 4, 2020	Annual Assessment Monitoring
		November 3, 2020	Semi-Annual Assessment Monitoring
PNMW-18	Downgradient	May 5, 2020	Annual Assessment Monitoring
		November 5, 2020	Semi-Annual Assessment Monitoring
PNMW-19	Downgradient	May 6, 2020	Annual Assessment Monitoring
		November 5, 2020	Semi-Annual Assessment Monitoring
PNMW-20	Downgradient	May 4, 2020	Annual Assessment Monitoring
		November 5, 2020	Semi-Annual Assessment Monitoring

3.1.4 East CCR Landfill

The East CCR Landfill is within the footprint of the former BASP. Removal of CCR and all areas affected by releases of CCR at the BASP was completed by March 31, 2017. Seven of the eight sample rounds for background at the East CCR Landfill were completed in 2017 and the eighth background sample event was completed in January 2018. The East CCR Landfill was constructed in 2018 and began operation July 8, 2019. The first detection monitoring event was in November 2019. Detection monitoring was conducted on May 4-5, 2020 and November 3-4, 2020. Samples were analyzed for all Appendix III COIs. **Table 5** provides the well identification, dates samples were collected in 2020, and the monitoring program (per (257.90(e)(3))).

Table 5. Number and dates of groundwater samples collected for each well at the East CCR Landfill and the required monitoring programs (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
PNMW-17	Upgradient / Background	May 4, 2020	Detection Monitoring
		November 3, 2020	Detection Monitoring
PNMW-21	Downgradient	May 4, 2020	Detection Monitoring
		November 4, 2020	Detection Monitoring
PNMW-22	Downgradient	May 5, 2020	Detection Monitoring
		November 4, 2020	Detection Monitoring
PNMW-23	Downgradient	May 5, 2020	Detection Monitoring
		November 3, 2020	Detection Monitoring

3.2 Water Levels and Sample Collection

Water levels were collected in each well prior to sample collection. Groundwater quality samples were collected in all CCR monitoring network wells unless wells were dry. Groundwater sample collection protocols follow the Groundwater Sample Collection Standard Operating Procedure (SOP) (HDR, 2015). The water samples were collected using a submersible Geotech bladder pump, and the pump and hose were decontaminated between wells following protocols outlined in the Sampling SOP. Each well was purged until field parameters stabilized in accordance with the sampling SOP. In accordance with the CCR Rule, groundwater samples were not field filtered. The field parameters of turbidity, pH, and temperature were measured using a YSI Professional Plus (or an equivalent) portable water quality instrument that was calibrated prior to use each day of sampling. The results of field measurements were recorded on a field data form, which is maintained as part of the field sampling records. For quality control, 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 Eurofins TestAmerica 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. Detection monitoring samples are analyzed for all Appendix III COIs. Initial assessment monitoring samples are analyzed for Appendix IV COIs to determine what COIs are detected. The semi-annual assessment monitoring samples are analyzed for Appendix III and detected Appendix IV COIs, plus TSS. Which COIs were detected at each facility is described in Section 4.2. Annual assessment monitoring samples are analyzed for all Appendix III and Appendix IV COIs, plus TSS. 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, 2017). Data validation was conducted to eliminate data that did not meet validation criteria and designate a data qualifier for any data quality limitation discovered.

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

4.0 Monitoring Results

4.1 Water Levels and Groundwater Flow Direction

The water levels at both upgradient and downgradient monitoring wells were recorded during all monitoring events. The water levels and contour map (**Appendix B**) confirm that monitoring wells PNMW-2B, PNMW-13, and PNMW-14 are all located upgradient of the North CCR Landfill and continue to be appropriate to represent sitewide background water quality. The contour map (**Appendix B**) also confirms that monitoring well PNMW-17 is located upgradient of the BASP, the AWRP, and the East CCR Landfill and is appropriate to represent background water quality for those CCR facilities. The groundwater flow direction is generally east under these facilities and is consistent throughout the year. Therefore, the selected downgradient wells continue to be appropriately located to monitor the CCR facilities.

4.2 Water Quality

4.2.1 North CCR 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 North CCR 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 three downgradient wells (PNMW-1B, PNMW-15, and PNMW-16). An evaluation of potential alternative sources of the observed SSIs was completed in April 2018, but no alternative source was confirmed at that time. 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 January 2019, 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 North CCR Landfill, which was completed in August 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 North CCR Landfill 257.95(d)(3)

Constituent	Unit	MCL	BTV (UTL)	GPS
Antimony	mg/l	0.006	0.00110	0.00600
Arsenic	mg/l	0.01	0.0140	0.0140
Barium	mg/l	2.0	0.491	2.00
Beryllium	mg/l	0.004	0.00210	0.00400
Cadmium	mg/l	0.005	0.000390	0.00500
Chromium, Total	mg/l	0.10	0.240	0.240
Cobalt	mg/l	0.006*	0.0246	0.0246
Fluoride	mg/l	4.0	1.50	4.00
Lead	mg/l	0.015*	0.0385	0.0385
Lithium	mg/l	0.04*	0.0940	0.0940
Mercury	mg/l	0.002	0.0000270	0.00200
Molybdenum	mg/l	0.1*	0.0260	0.0260
Radium-226-228	pci/l	5.0^	3.46	5.00
Selenium	mg/l	0.05	0.00629	0.0500
Thallium	mg/l	0.002	0.000780	0.00200

Milligrams per liter (mg/L)
*EPA adopted health-based value in place of MCL.
^Colorado Water Quality Regulation

In February 2020, semi-annual assessment monitoring samples were collected from the North Landfill certified monitoring well network wells plus P6, P7 and P-18B and samples were analyzed for all Appendix III and Appendix IV COIs except mercury, which was not detected in the last annual assessment monitoring event. The sample results indicate downgradient wells PNMW-1B, PNMW-15 and PNMW-16 had some COIs above background values. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include the February 2020 data. The February sample event found similar results as prior events, downgradient wells PNMW-15 and PNMW-16 had concentrations of lithium at SSLs above the GPS. Laboratory reports are provided in **Appendix C**.

In July 2020, assessment monitoring samples were collected from the North Landfill certified monitoring well network wells plus P6, P7 and P-18B and samples were analyzed for all Appendix III and Appendix IV COIs. The sample results indicate downgradient wells PNMW-1B, PNMW-15 and PNMW-16 had some COIs above background values. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include July 2020 data. The July sample event found similar results as prior events, downgradient wells PNMW-15 and PNMW-16 had concentrations of lithium at SSLs above the GPS. Laboratory reports are provided in **Appendix C**.

In 2021, PSCo will continue to monitor groundwater at the landfill in accordance with the assessment monitoring program and consistent with 257.93(e), while continuing to evaluate the previously assessed corrective measures, as discussed in Section 5.1.

4.2.2 Bottom Ash Storage Pond

Closure of the BASP was completed by March 31, 2017 per 257.102(e)(i), with removal of CCR and all areas affected by releases of CCR. Therefore, it is important to note that all groundwater monitoring at the BASP reflect post-CCR removal conditions.

As stipulated in the CCR Rule, eight rounds of background groundwater sampling were completed between June 2017 and January 2018 for the BASP. The first detection monitoring sampling was done in February 2019. Background Threshold Values were calculated, and the detection monitoring results were compared to BTVs. In June 2019, a determination was made that concentrations of several Appendix III COIs statistically significant increases (SSIs) over BTVs. These SSIs triggered the assessment monitoring program for the BASP, 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 the assessment monitoring results were compared to the respective GPS values (**Table 7**). In May 2020, downgradient wells PNMW-21 and PNMW-22 were found to have concentrations of lithium at SSLs above the GPS (HDR 2020). This triggered the requirement to conduct an assessment of corrective measures for the former BASP.

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

Constituent	Unit	MCL	BTV (UTL)	GPS
Arsenic	mg/l	0.01	0.00200	0.01
Barium	mg/l	2.0	0.120	2.0
Chromium, Total	mg/l	0.10	0.0162	0.10
Cobalt	mg/l	0.006*	0.000500	0.006
Fluoride	mg/l	4.0	.314	4.0
Lead	mg/l	0.015*	0.000730	0.015
Lithium	mg/l	0.04*	0.0451	0.0451
Molybdenum	mg/l	0.1*	0.00360	0.1
Radium-226-228	pci/l	5.0^	1.07	5.00
Selenium	mg/l	0.05	0.0257	0.05

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

Annual and semi-annual assessment monitoring sample collection has continued in 2020 for the monitoring network of wells (PNMW-17, PNMW-21, PNMW-22, PNMW-23) at the BASP. Assessment monitoring samples were collected and analyzed for all Appendix III and Appendix IV COIs in May 2020. All the COIs were detected in at least one well except for arsenic. Laboratory reports are provided in **Appendix C**. The sample results indicate downgradient wells PNMW-21, PNMW-22 and PNMW-23 had some COIs above background values in May 2020. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in

downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include the May 2020 data. The May sample event found similar results as prior events, downgradient wells PNMW-21 and PNMW-22 had concentrations of lithium at SSLs above the GPS.

In November 2020 semi-annual assessment monitoring samples were collected and analyzed for Appendix III and detected Appendix IV COIs. Laboratory reports for 2020 are provided in **Appendix C**. The sample results indicate downgradient wells PNMW-21, PNMW-22 and PNMW-23 had some COIs above background values in November 2020. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include the November 2020 data. The November sample event found similar results as prior events, downgradient wells PNMW-21 and PNMW-22 had concentrations of lithium at SSLs above the GPS.

The draft *Conceptual Site Model and Assessment of Corrective Measures* for the BASP is complete and will be published in early 2021. In 2021, PSCo will continue to monitor groundwater at the former BASP in accordance with the assessment monitoring program and consistent with 257.93(e).

4.2.3 Ash Water Recovery Pond

Removal of CCR and all areas affected by releases of CCR at the AWRP was complete in April 10, 2017. The CCR material has been completely removed from the pond. Therefore, it is important to note that all groundwater monitoring occurring after April 2017 at the AWRP reflect post-CCR removal conditions.

As stipulated in the CCR Rule, eight rounds of background groundwater sampling were completed between July 2018 and January 2019 for the AWRP. The first detection monitoring sampling was done in February 2019. Background Threshold Values were calculated, and the detection monitoring results were compared to BTVs. In June 2019, a determination was made that concentrations of several Appendix III COIs statistically significant increases (SSIs) over BTVs. These SSIs triggered the assessment monitoring program for the AWRP, 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 the assessment monitoring results were compared to the respective GPS values (**Table 8**). In May 2020, downgradient well PNMW-20 was found to have a concentration of lithium at SSLs above the GPS (HDR 2020). This triggered the requirement to conduct an assessment of corrective measures for the former AWRP.

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

Constituent	Unit	MCL	BTV (UTL)	GPS
Arsenic	mg/l	0.01	0.00200	0.01
Barium	mg/l	2.0	0.120	2.0
Chromium, Total	mg/l	0.10	0.0162	0.10
Cobalt	mg/l	0.006*	0.000500	0.006
Fluoride	mg/l	4.0	0.314	4.0
Lead	mg/l	0.015*	0.000730	0.015
Lithium	mg/l	0.04*	0.0451	0.0451
Molybdenum	mg/l	0.1*	0.00360	0.1
Radium-226-228	pci/l	5.0^	1.07	5.00
Selenium	mg/l	0.05	0.0257	0.05

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

Annual and semi-annual assessment monitoring sample collection has continued in 2020 for the monitoring network of wells (PNMW-17, PNMW-18, PNMW-19, PNMW-20) at the AWRP. Assessment monitoring samples were collected and analyzed for all Appendix III and Appendix IV COIs in May 2020. All the COIs were detected in at least one well except for arsenic. Laboratory reports are provided in **Appendix C**. The sample results indicate downgradient wells PNMW-18 and PNMW-20 had some COIs above background values in May 2020. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include the May 2020 data. The May sample event found similar results as prior events, downgradient well PNMW-20 had concentrations of lithium at an SSL above the GPS.

In November 2020 semi-annual assessment monitoring samples were collected and analyzed for Appendix III and detected Appendix IV COIs. Laboratory reports for 2020 are provided in **Appendix C**. The sample results indicate downgradient wells had some COIs above background values in November 2020. In accordance with CCR Rule 257.95(f), detected Appendix IV COI concentrations in downgradient wells were compared against GPS and were found to exceed GPS. Therefore, in accordance with CCR Rule 257.95(g), the lower confidence limits (LCL) for Appendix IV constituents at each downgradient well was updated to include the November 2020 data. The November sample event found similar results as prior events, downgradient well PNMW-20 had concentrations of lithium at an SSL above the GPS.

The draft *Conceptual Site Model and Assessment of Corrective Measures* for the AWRP is complete and will be published in early 2021. In 2021, PSCo will continue to monitor groundwater at the former AWRP in accordance with the assessment monitoring program and consistent with 257.93(e).

4.2.4 East CCR Landfill

The East CCR Landfill is within the footprint of the former BASP. Removal of CCR and all areas affected by releases of CCR at the BASP was completed by March 31, 2017. The eight rounds for background at the East CCR Landfill were completed between June 2017 and January 2018 at the East CCR Landfill monitoring well network (PNMW-17, PNMW-21, PNMW-22, and PNMW-23). Samples were analyzed for Appendix III and IV COIs plus TSS. The East CCR Landfill was constructed in 2018 and began operation July 8, 2019. The initial detection monitoring event was conducted November 2019. On March 31, 2020, PSCo documented SSIs in downgradient monitoring wells at the Pawnee Station East Landfill Coal Combustion Residuals (CCR) unit (HDR, 2018a). The SSIs were observed for TDS in well PNMW-21 and sulfate and TDS in wells PNMW-22 and PNMW-23, based on the background values from PNMW-17 (HDR, 2018b). On June 19, 2020 PSCo documented an Alternative Source Demonstration to describe that the SSIs of the East Landfill were in the same wells as the BASP prior to the first ash placement in the East CCR Landfill (HDR 2020b). The demonstration concluded that the constituents with SSIs were a pre-existing condition in the groundwater before the East CCR Landfill became active, and that the source of the SSIs is the former BASP.

Detection monitoring continued in 2020 with sampling events in May and November. Samples were analyzed for all Appendix III COIs. Laboratory reports for 2020 are provided in **Appendix C**. The detection monitoring results from May and November 2020 were compared to the BTVs for the East CCR Landfill and no additional SSIs of Appendix III COIs were identified that had not been addressed by the alternative source demonstration.

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

5.0 Remedy Selection Progress

This section provides the semi-annual progress report describing the progress towards remedy selection and design for the North CCR Landfill, the former AWRP and the former BASP in accordance with 257.97(a).

5.1 North CCR Landfill

As described in *Groundwater Protection Standards and Determination of SSLs per 257.95(g)* downgradient wells at the North Landfill were found to have concentrations of lithium at SSLs above the GPS. Therefore, PSCo completed the *Conceptual Site Model and Assessment of Corrective Measures* report addressing the North Landfill on August 30, 2019 in accordance with CCR Rule § 257.96. A groundwater flow and transport model was developed for the North CCR Landfill in the Spring 2019. The groundwater models are described in the *Conceptual Site Model and Assessment of Corrective Measures* report (HDR 2019). The flow model and transport model were both calibrated.

Since the last semi-annual selection of remedy update in July 2020, work has been completed to continue to refine the groundwater model and evaluate potential remedies. The model is a critical tool in evaluating the nature and extent of constituent concentrations and the effectiveness of the identified potential remedies. The model was developed in 2019 to create a

digital representation of the groundwater flow system to predict groundwater movement and constituent fate and transport.

The flow model developed in 2019 was recalibrated in the first half of 2020 to reduce the difference between simulated and observed head values. The recalibration continues to meet the model calibration goals with an acceptable degree of accuracy. Based on the recalibrated flow model, the preliminary model simulations predict that there is groundwater flow with concentrations of lithium above groundwater protection standards moving eastward from the North CCR Landfill waste boundary; however, in very small mass fluxes. There is currently no offsite transport of constituents of concern at the site, nor does the groundwater flow model simulate offsite migration in the future. The extent of the COC in groundwater is well within the plant boundary. Since August 2020, numerous simulations of the groundwater flow and transport model have been run to predict groundwater movement and constituent transport under the alternative corrective measures described in the ACM, including:

- Monitored natural attenuation
- Partial ash removal
- Complete ash removal
- Partial In-situ solidification

Each model simulation assumed conditions reflective of the corrective measure being evaluated. Each predictive simulation predicts that the extent of the COC in groundwater is well within the Pawnee Station property and does not extend as far as the AWRP and Evaporation Pond D.

In 2021, PSCo will conduct additional evaluation of the previously assessed corrective measures for the landfill, including evaluation of alternative measures through continued variations of the numerical groundwater modeling and contaminant fate and transport modeling scenarios. PSCo will also advance the engineering and geochemical feasibility of each of the potential corrective measures. For example, PSCo will develop a Permeable Reactive Barrier (PRB) feasibility study design. The study will be designed to evaluate the feasibility of a PRB via conventional trench, via injection wells, and via funnel and gate. The study will be designed to evaluate the geotechnical characteristics of the substrate and geochemical bench testing of reagents with site groundwater. 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.

5.2 AWRP and BASP

5.2.1 Source Control Measures Undertaken

Removal of CCR and all areas affected by releases of CCR at the AWRP and BASP were complete in April 2017. The CCR material has been completely removed from the ponds. Therefore, it is important to note that all groundwater monitoring occurring after April 2017 at these units reflect post-CCR removal conditions.

5.2.2 Progress Towards Remedy Selection

A draft Assessment of Corrective Measures (ACM) has been developed for the AWRP and the BASP and will be published on the CCR website in early 2021. PSCo intends to follow a phased approach, which includes source removal (complete), continued monitoring.

The reduction of hydraulic loading and recharge of the aquifer that result from pond closure and cleanout are expected to slowly change groundwater redox conditions and the physical removal of CCR is expected to slowly improve groundwater quality. It is anticipated that the remedy selection process for addressing affected groundwater will proceed following several semi-annual sampling events that are evaluating if there is a trend in water quality as a result of CCR source removal. For example, there is already a decreasing trend of lithium concentrations and most Appendix III COIs at PNMW-21 are nearing background values. The additional downgradient wells with GPS exceedances are being further evaluated.

Additionally, PSCo will continue executing the groundwater compliance schedule, which includes semi-annual assessment monitoring in accordance with §257.95 to monitor groundwater conditions and inform the further evaluation of corrective measures alternatives. In accordance with §257.97(a), PSCo will also complete semi-annual progress reporting in 2021 to document work completed towards remedy selection and design.

6.0 Summary

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

North CCR Landfill

- Assessment monitoring sampling continued in 2020 to include a semi-annual sample event in February 2020, which analyzed for all Appendix III and IV COIs, except for mercury. All 6 certified well network wells for the North Landfill were sampled, and three additional wells at the eastern property boundary.
- An annual assessment monitoring event was performed in July 2020 and analyzed for all Appendix III and IV COIs. All 6 certified well network wells for the landfill were sampled, and three additional wells at the eastern property boundary.
- Assessment monitoring data from the North Landfill is statistically evaluated after each event and compared to background values and GPS. Water quality results appear stable with only lithium concentrations at SSLs over GPS at two downgradient wells.
- Pawnee Station North CCR Landfill status at the end of 2020 is assessment monitoring and evaluation of potential remedies. A groundwater flow and transport model was updated in 2020 and used to predict groundwater movement and constituent transport under each of the alternative corrective measures. Each predictive simulation predicts that the extent of the COC in groundwater is well within the Pawnee Station property and does not extend as far as the AWRP and Evaporation Pond D.

(Closed) Bottom Ash Storage Pond

- All CCR waste was removed from the pond by March 2017.
- Groundwater flow direction under the BASP is generally to the east.

- Assessment monitoring sampling continued in 2020 to include an annual sample event in May 2020 which analyzed for all Appendix III and IV COIs. All certified well network wells for the former BASP were sampled.
- A semi-annual assessment monitoring event was performed in November 2020 and analyzed for all Appendix III and detected IV COIs. All certified well network wells for the BASP were sampled.
- Water quality results appear stable with only lithium concentrations at SSLs over GPS at two downgradient wells.
- The draft BASP *Conceptual Site Model and Assessment of Corrective Measures* report was completed and will be published to the CCR website in early 2021.
- Pawnee Station BASP current status is in assessment monitoring and evaluation of potential remedies; however, because the pond has been closed all monitoring reflects post-CCR waste removal. Assessment monitoring will continue to evaluate whether clean closure criteria in groundwater have been met.

(Closed) Ash Water Recovery Pond

- All CCR waste was removed from the pond by April 2017.
- Groundwater flow direction under the AWRP is generally to the east.
- Assessment monitoring sampling continued in 2020 to include an annual sample event in May 2020 which analyzed for all Appendix III and IV COIs. All certified well network wells for the former AWRP were sampled.
- A semi-annual assessment monitoring event was performed in November 2020 and analyzed for all Appendix III and detected IV COIs. All certified well network wells for the former AWRP were sampled.
- Water quality results appear stable with only lithium concentrations at SSLs over GPS at one downgradient well.
- The draft AWRP *Conceptual Site Model and Assessment of Corrective Measures* report was completed and will be published to the CCR website in early 2021.
- Pawnee Station AWRP current status is in assessment monitoring and evaluation of potential remedies; however, because the pond has been closed all monitoring reflects post-CCR waste removal. Assessment monitoring will continue to evaluate whether clean closure criteria in groundwater have been met.

East CCR Landfill

- In 2018 the East CCR Landfill was constructed in the footprint of the former BASP, which was physically closed by removal of all CCR in 2017. PSCo began operation of the East CCR Landfill by placing waste July 8, 2019.
- Groundwater flow direction under the East CCR Landfill is generally to the east.
- Detection monitoring was initiated in November 2019 and SSIs were identified.
- PSCo developed an Alternative Source Determination for the East Landfill Appendix III SSIs that determined the constituents with SSIs were a pre-existing condition in the groundwater before the landfill became active and that the source of the SSIs is the former BASP.

- Detection monitoring sampling continued in 2020 to include semi-annual sampling events in May and November, which analyzed for all Appendix III COIs. All certified well network wells for the East CCR Landfill were sampled.
- Detection monitoring data from the East Landfill is statistically evaluated after each event and compared to background values. No new SSIs have been observed that were not addressed by the alternative source demonstration.
- Pawnee Station East CCR Landfill current status is in detection monitoring. Detection monitoring will continue in 2021, data from the East CCR Landfill will be statistically evaluated to determine if there are any SSIs over background.

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

- Finalize the BASP and AWRP *Conceptual Site Model and Assessment of Corrective Measures* report for publication to the website in early 2021.
- Continued evaluation of geochemical changes and trends at the AWRP and BASP as a result of the changed conditions since clean closure.
- Continued semi-annual groundwater assessment monitoring at the North Landfill, former BASP, and former AWRP.
- Continued semi-annual groundwater detection monitoring at the East Landfill.

7.0 References

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

HDR, 2018. Groundwater Monitoring System Certification - Compliance with the Coal Combustion Residuals Rule Pawnee Station. December 2018.

HDR, 2018. Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule. Updated January 15, 2018.

HDR, 2019. Conceptual Site Model and Assessment of Corrective Measures - Compliance with the Coal Combustion Residuals Rule Valmont Station. August 30, 2019.

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

HDR, 2020a. Pawnee Station Ash Water Recovery Pond and Bottom Ash Storage Pond Groundwater Protection Standards and Determination of SSLs per 257.95(g). May 8, 2020.

HDR, 2020b. Alternative Source Determination of Statistically Significant Increases over Background per CCR Rule 257.93(h)(2). June 19, 2020.

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. As of 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 physically 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

Xcel Energy™

PAWNEE POWER STATION

MORGAN COUNTY, CO

PATH: J:\2015\15-115_XCEL_CORE_SAMPLING_TESTING_(WALTHER)\MAP_DOCS\GROUNDWATER_CONTOURS\PAWNEE_GWCONTOUR_DEC2020_WP6.MXD - USER: AKAPLE - DATE: 12/18/2020

Appendix C

Laboratory Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 280-133488-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
3/5/2020 6:10:05 PM

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

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-133488-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance 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)
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: 280-133488-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-133488-1

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 2/5/2020 1:36 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 3.0º C, 3.0º C, 3.7º C and 3.8º C.

Receipt Exceptions

The following samples were received without a collection time documented on the container labels: P6 (280-133488-1), P7 (280-133488-2) and P18B (280-133488-3). The samples were logged per the collection times listed on the COC unless instructed otherwise.

TOTAL RECOVERABLE METALS
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/10/2020 and analyzed on 02/11/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 02/10/2020 and analyzed on 02/13/2020.

Sample P7 (280-133488-2)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) associated with batch 240-422638 recovered above the upper control limit for Molybdenum. The samples associated with this CCV were below the reporting limit for the affected analyte; therefore, the data have been reported. The following samples are impacted: P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7) and PNMW15 (280-133488-8).

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

Job ID: 280-133488-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

TOTAL DISSOLVED SOLIDS
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 02/07/2020.

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

TOTAL SUSPENDED SOLIDS
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 02/07/2020 and 02/10/2020.

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

CORROSIVITY (PH)
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 02/07/2020.

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

ANIONS (28 DAYS)
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 02/10/2020.

Samples P6 (280-133488-1)[20X], P7 (280-133488-2)[20X], P18B (280-133488-3)[20X], PNMW1B (280-133488-4)[20X], PNMW15 (280-133488-8)[20X], PNMW16 (280-133488-9)[20X] and PNMW16 DUP (280-133488-10)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Chloride and Sulfate failed the recovery criteria high for the MSD of sample PNMW14 (280-133488-7) in batch 280-485424. Refer to the QC report for details. 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 P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 02/10/2020 and analyzed on 03/03/2020.

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.
P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10), PNMW16 EB (280-133488-11), (LCS 160-459801/1-A), (LCSD 160-459801/2-A) and (MB 160-459801/21-A)

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

Job ID: 280-133488-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

RADIUM-228
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 02/10/2020 and analyzed on 02/18/2020.

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.
P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10), PNMW16 EB (280-133488-11), (LCS 160-459801/1-A), (LCSD 160-459801/2-A) and (MB 160-459801/21-A)

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

RADIUM-226/RADIUM-228 (GFPC)
Samples P6 (280-133488-1), P7 (280-133488-2), P18B (280-133488-3), PNMW1B (280-133488-4), PNMW2B (280-133488-5), PNMW13 (280-133488-6), PNMW14 (280-133488-7), PNMW15 (280-133488-8), PNMW16 (280-133488-9), PNMW16 DUP (280-133488-10) and PNMW16 EB (280-133488-11) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 03/04/2020.

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

Detection Summary

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

Job ID: 280-133488-1

Client Sample ID: P6 — Lab Sample ID: 280-133488-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.30		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0015	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	96		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00077	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	0.0011	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00026	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Lithium	0.032		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	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	94		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.75		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	330		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	870		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: P7 — Lab Sample ID: 280-133488-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.10		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.045		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	630		5.0	2.9	mg/L	5		6020A	Total Recoverable
Chromium	0.0025		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0011	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0060		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.042		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	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	420		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.18	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1400		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2700		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: P18B — Lab Sample ID: 280-133488-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.055	J	0.10	0.023	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: P18B (Continued) — Lab Sample ID: 280-133488-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0019	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.055		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	140		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0025		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0011	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0023	J	0.0050	0.00089	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	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	80		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.23	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	210		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	670		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW1B — Lab Sample ID: 280-133488-4

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	0.031		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	98		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0025		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	0.014		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	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	54		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.80		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	210		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	830		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW2B — Lab Sample ID: 280-133488-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.064	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.14		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	74		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW2B (Continued) — Lab Sample ID: 280-133488-5

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
Molybdenum	0.0032	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0026	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.036		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	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	11		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.57		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	20		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	410		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW13 — Lab Sample ID: 280-133488-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.23		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00098	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.058		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	38		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00083	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0026		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0045	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00063	J	0.0010	0.00045	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	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	4.1		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.92		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)	420		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	110		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW14 — Lab Sample ID: 280-133488-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.074	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00080	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.092		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	39		1.0	0.58	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-133488-1

Client Sample ID: PNMW14 (Continued) — Lab Sample ID: 280-133488-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00024	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	0.0056	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0016	J	0.0050	0.00089	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	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.3	J F1	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.96		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	20	F1	5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	240		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	66		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW15 — Lab Sample ID: 280-133488-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.32		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0010	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.043		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	110		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0018		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0044		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0016	J ^	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0019		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0016	J	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	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	4.2		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.44	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	430		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	990		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	230		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW16 — Lab Sample ID: 280-133488-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.37		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-133488-1

Client Sample ID: PNMW16 (Continued) — Lab Sample ID: 280-133488-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	210		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0034		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	0.0012	J	0.010	0.0011	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	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.9	J	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1000		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	64		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW16 DUP — Lab Sample ID: 280-133488-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.37		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.020		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	210		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0033		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	0.0012	J	0.010	0.0011	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	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.9	J	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1000		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	37		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW16 EB — Lab Sample ID: 280-133488-11

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	23.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	4.4		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.55		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5.5		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	65		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-133488-1

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
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-133488-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-133488-1	P6	Water	02/03/20 12:55	02/05/20 13:36	
280-133488-2	P7	Water	02/03/20 15:30	02/05/20 13:36	
280-133488-3	P18B	Water	02/03/20 17:30	02/05/20 13:36	
280-133488-4	PNMW1B	Water	02/04/20 14:00	02/05/20 13:36	
280-133488-5	PNMW2B	Water	02/04/20 15:30	02/05/20 13:36	
280-133488-6	PNMW13	Water	02/04/20 16:15	02/05/20 13:36	
280-133488-7	PNMW14	Water	02/03/20 13:55	02/05/20 13:36	
280-133488-8	PNMW15	Water	02/04/20 12:05	02/05/20 13:36	
280-133488-9	PNMW16	Water	02/03/20 17:05	02/05/20 13:36	
280-133488-10	PNMW16 DUP	Water	02/03/20 17:05	02/05/20 13:36	
280-133488-11	PNMW16 EB	Water	02/03/20 18:00	02/05/20 13:36	

Client Sample Results

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

Job ID: 280-133488-1

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

Client Sample ID: P6 — **Lab Sample ID: 280-133488-1**
Date Collected: 02/03/20 12:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.30		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:26	1

Client Sample ID: P7 — **Lab Sample ID: 280-133488-2**
Date Collected: 02/03/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.10		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:30	1

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.055	J	0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:35	1

Client Sample ID: PNMW1B — **Lab Sample ID: 280-133488-4**
Date Collected: 02/04/20 14:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:39	1

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.064	J	0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:43	1

Client Sample ID: PNMW13 — **Lab Sample ID: 280-133488-6**
Date Collected: 02/04/20 16:15 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.23		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 12:48	1

Client Sample ID: PNMW14 — **Lab Sample ID: 280-133488-7**
Date Collected: 02/03/20 13:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.074	J	0.10	0.023	mg/L		02/10/20 14:00	02/11/20 13:01	1

Client Sample ID: PNMW15 — **Lab Sample ID: 280-133488-8**
Date Collected: 02/04/20 12:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.32		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 13:05	1

Client Sample ID: PNMW16 — **Lab Sample ID: 280-133488-9**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.37		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 13:09	1

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

Client Sample ID: PNMW16 DUP — **Lab Sample ID: 280-133488-10**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.37**		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 13:14	1

Client Sample ID: PNMW16 EB — **Lab Sample ID: 280-133488-11**
Date Collected: 02/03/20 18:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 13:18	1

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

Client Sample ID: P6 — **Lab Sample ID: 280-133488-1**
Date Collected: 02/03/20 12:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:24	1
Arsenic	**0.0015**	**J**	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:24	1
Barium	**0.037**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:24	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:24	1
Calcium	**96**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:24	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:24	1
Cobalt	**0.00077**	**J**	0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:24	1
Chromium	ND		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:24	1
Molybdenum	**0.0063**	**J ^**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:24	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:24	1
Selenium	**0.0011**	**J**	0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:24	1
Thallium	**0.00026**	**J**	0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:24	1
Lithium	**0.032**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 16:44	1

Client Sample ID: P7 — **Lab Sample ID: 280-133488-2**
Date Collected: 02/03/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:28	1
Arsenic	**0.0014**	**J**	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:28	1
Barium	**0.045**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:28	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:28	1
Calcium	**630**		5.0	2.9	mg/L		02/10/20 14:00	02/13/20 16:53	5
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:28	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:28	1
Chromium	**0.0025**		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:28	1
Molybdenum	**0.0011**	**J ^**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:28	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:28	1
Selenium	**0.0060**		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:28	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:28	1
Lithium	**0.042**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 16:48	1

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:32	1

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

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019	J	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:32	1
Barium	0.055		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:32	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:32	1
Calcium	140		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:32	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:32	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:32	1
Chromium	0.0025		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:32	1
Molybdenum	0.0011	J ^	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:32	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:32	1
Selenium	0.0023	J	0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:32	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:32	1
Lithium	0.027		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 16:57	1

Client Sample ID: PNMW1B — **Lab Sample ID: 280-133488-4**
Date Collected: 02/04/20 14:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:37	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:37	1
Barium	0.031		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:37	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:37	1
Calcium	98		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:37	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:37	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:37	1
Chromium	0.0025		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:37	1
Molybdenum	0.0037	J ^	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:37	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:37	1
Selenium	0.014		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:37	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:37	1
Lithium	0.078		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:01	1

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:41	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:41	1
Barium	0.14		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:41	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:41	1
Calcium	74		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:41	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:41	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:41	1
Chromium	0.0012	J	0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:41	1
Molybdenum	0.0032	J ^	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:41	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:41	1
Selenium	0.0026	J	0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:41	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:41	1
Lithium	0.036		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:14	1

Client Sample Results

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

Job ID: 280-133488-1

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

Client Sample ID: PNMW13
Date Collected: 02/04/20 16:15
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:45	1
Arsenic	**0.00098**	**J**	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:45	1
Barium	**0.058**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:45	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:45	1
Calcium	**38**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:45	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:45	1
Cobalt	**0.00083**	**J**	0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:45	1
Chromium	**0.0026**		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:45	1
Molybdenum	**0.0045**	**J ^**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:45	1
Lead	**0.00063**	**J**	0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:45	1
Selenium	ND		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:45	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:45	1
Lithium	**0.053**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:18	1

Client Sample ID: PNMW14
Date Collected: 02/03/20 13:55
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:49	1
Arsenic	**0.00080**	**J**	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:49	1
Barium	**0.092**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:49	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:49	1
Calcium	**39**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:49	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:49	1
Cobalt	**0.00024**	**J**	0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:49	1
Chromium	**0.0025**		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:49	1
Molybdenum	**0.0056**	**J ^**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:49	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:49	1
Selenium	**0.0016**	**J**	0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:49	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:49	1
Lithium	**0.035**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:22	1

Client Sample ID: PNMW15
Date Collected: 02/04/20 12:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 00:54	1
Arsenic	**0.0010**	**J**	0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 00:54	1
Barium	**0.043**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 00:54	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 00:54	1
Calcium	**110**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 00:54	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:54	1
Cobalt	**0.0018**		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 00:54	1
Chromium	**0.0044**		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 00:54	1
Molybdenum	**0.0016**	**J ^**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 00:54	1
Lead	**0.0019**		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 00:54	1
Selenium	**0.0016**	**J**	0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 00:54	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 00:54	1
Lithium	**0.094**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:27	1

Client Sample Results

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

Job ID: 280-133488-1

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

Client Sample ID: PNMW16
Date Collected: 02/03/20 17:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 01:06	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 01:06	1
Barium	**0.020**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 01:06	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 01:06	1
Calcium	**210**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 01:06	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:06	1
Cobalt	**0.0034**		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 01:06	1
Chromium	**0.0015**	**J**	0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 01:06	1
Molybdenum	**0.0012**	**J**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 01:06	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 01:06	1
Selenium	ND		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 01:06	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:06	1
Lithium	**0.15**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:31	1

Client Sample ID: PNMW16 DUP
Date Collected: 02/03/20 17:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 01:11	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 01:11	1
Barium	**0.020**		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 01:11	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 01:11	1
Calcium	**210**		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 01:11	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:11	1
Cobalt	**0.0033**		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 01:11	1
Chromium	**0.0015**	**J**	0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 01:11	1
Molybdenum	**0.0012**	**J**	0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 01:11	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 01:11	1
Selenium	ND		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 01:11	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:11	1
Lithium	**0.15**		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:35	1

Client Sample ID: PNMW16 EB
Date Collected: 02/03/20 18:00
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/13/20 01:15	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/13/20 01:15	1
Barium	ND		0.0050	0.0022	mg/L		02/10/20 14:00	02/13/20 01:15	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/13/20 01:15	1
Calcium	ND		1.0	0.58	mg/L		02/10/20 14:00	02/13/20 01:15	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:15	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/13/20 01:15	1
Chromium	ND		0.0020	0.00098	mg/L		02/10/20 14:00	02/13/20 01:15	1
Molybdenum	ND		0.010	0.0011	mg/L		02/10/20 14:00	02/13/20 01:15	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/13/20 01:15	1
Selenium	ND		0.0050	0.00089	mg/L		02/10/20 14:00	02/13/20 01:15	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/13/20 01:15	1
Lithium	ND		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 17:39	1

General Chemistry

Client Sample ID: P6 — **Lab Sample ID: 280-133488-1**
Date Collected: 02/03/20 12:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 16:44	1
Temperature	22.9	HF	1.0	1.0	Degrees C			02/07/20 16:44	1
Chloride	94		3.0	1.0	mg/L			02/10/20 16:27	1
Fluoride	0.75		0.50	0.17	mg/L			02/10/20 16:27	1
Sulfate	330		100	21	mg/L			02/10/20 16:43	20
Total Dissolved Solids (TDS)	870		20	9.4	mg/L			02/07/20 08:36	1
Total Suspended Solids	ND		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: P7 — **Lab Sample ID: 280-133488-2**
Date Collected: 02/03/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 16:48	1
Temperature	23.0	HF	1.0	1.0	Degrees C			02/07/20 16:48	1
Chloride	420		60	20	mg/L			02/10/20 17:16	20
Fluoride	0.18	J	0.50	0.17	mg/L			02/10/20 17:00	1
Sulfate	1400		100	21	mg/L			02/10/20 17:16	20
Total Dissolved Solids (TDS)	2700		40	19	mg/L			02/07/20 08:36	1
Total Suspended Solids	ND		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 16:52	1
Temperature	23.1	HF	1.0	1.0	Degrees C			02/07/20 16:52	1
Chloride	80		3.0	1.0	mg/L			02/10/20 17:33	1
Fluoride	0.23	J	0.50	0.17	mg/L			02/10/20 17:33	1
Sulfate	210		100	21	mg/L			02/10/20 17:49	20
Total Dissolved Solids (TDS)	670		10	4.7	mg/L			02/07/20 08:36	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW1B — **Lab Sample ID: 280-133488-4**
Date Collected: 02/04/20 14:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 16:57	1
Temperature	23.4	HF	1.0	1.0	Degrees C			02/07/20 16:57	1
Chloride	54		3.0	1.0	mg/L			02/10/20 17:47	1
Fluoride	0.80		0.50	0.17	mg/L			02/10/20 17:47	1
Sulfate	210		100	21	mg/L			02/10/20 18:04	20
Total Dissolved Solids (TDS)	830		20	9.4	mg/L			02/07/20 08:36	1
Total Suspended Solids	6.0		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:01	1
Temperature	23.5	HF	1.0	1.0	Degrees C			02/07/20 17:01	1

General Chemistry (Continued)

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		3.0	1.0	mg/L			02/10/20 18:22	1
Fluoride	0.57		0.50	0.17	mg/L			02/10/20 18:22	1
Sulfate	20		5.0	1.0	mg/L			02/10/20 18:22	1
Total Dissolved Solids (TDS)	410		10	4.7	mg/L			02/07/20 08:36	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW13 — **Lab Sample ID: 280-133488-6**
Date Collected: 02/04/20 16:15 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:05	1
Temperature	23.1	HF	1.0	1.0	Degrees C			02/07/20 17:05	1
Chloride	4.1		3.0	1.0	mg/L			02/10/20 18:57	1
Fluoride	0.92		0.50	0.17	mg/L			02/10/20 18:57	1
Sulfate	39		5.0	1.0	mg/L			02/10/20 18:57	1
Total Dissolved Solids (TDS)	420		10	4.7	mg/L			02/07/20 08:36	1
Total Suspended Solids	110		4.0	1.1	mg/L			02/10/20 12:46	1

Client Sample ID: PNMW14 — **Lab Sample ID: 280-133488-7**
Date Collected: 02/03/20 13:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:09	1
Temperature	22.9	HF	1.0	1.0	Degrees C			02/07/20 17:09	1
Chloride	1.3	J F1	3.0	1.0	mg/L			02/10/20 18:05	1
Fluoride	0.96		0.50	0.17	mg/L			02/10/20 18:05	1
Sulfate	20	F1	5.0	1.0	mg/L			02/10/20 18:05	1
Total Dissolved Solids (TDS)	240		10	4.7	mg/L			02/07/20 08:36	1
Total Suspended Solids	66		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW15 — **Lab Sample ID: 280-133488-8**
Date Collected: 02/04/20 12:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:34	1
Temperature	24.1	HF	1.0	1.0	Degrees C			02/07/20 17:34	1
Chloride	4.2		3.0	1.0	mg/L			02/10/20 21:17	1
Fluoride	0.44	J	0.50	0.17	mg/L			02/10/20 21:17	1
Sulfate	430		100	21	mg/L			02/10/20 21:34	20
Total Dissolved Solids (TDS)	990		20	9.4	mg/L			02/07/20 08:36	1
Total Suspended Solids	230		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW16 — **Lab Sample ID: 280-133488-9**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:44	1
Temperature	23.6	HF	1.0	1.0	Degrees C			02/07/20 17:44	1
Chloride	1.9	J	3.0	1.0	mg/L			02/10/20 20:50	1
Fluoride	0.24	J	0.50	0.17	mg/L			02/10/20 20:50	1

General Chemistry (Continued)

Client Sample ID: PNMW16 — **Lab Sample ID: 280-133488-9**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1000		100	21	mg/L			02/10/20 21:06	20
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L			02/07/20 08:36	1
Total Suspended Solids	64		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW16 DUP — **Lab Sample ID: 280-133488-10**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:50	1
Temperature	23.6	HF	1.0	1.0	Degrees C			02/07/20 17:50	1
Chloride	1.9	J	3.0	1.0	mg/L			02/10/20 21:23	1
Fluoride	0.24	J	0.50	0.17	mg/L			02/10/20 21:23	1
Sulfate	1000		100	21	mg/L			02/10/20 21:39	20
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L			02/07/20 08:36	1
Total Suspended Solids	37		4.0	1.1	mg/L			02/07/20 11:23	1

Client Sample ID: PNMW16 EB — **Lab Sample ID: 280-133488-11**
Date Collected: 02/03/20 18:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

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			02/07/20 17:53	1
Temperature	23.2	HF	1.0	1.0	Degrees C			02/07/20 17:53	1
Chloride	4.4		3.0	1.0	mg/L			02/10/20 21:55	1
Fluoride	0.55		0.50	0.17	mg/L			02/10/20 21:55	1
Sulfate	5.5		5.0	1.0	mg/L			02/10/20 21:55	1
Total Dissolved Solids (TDS)	65		10	4.7	mg/L			02/07/20 08:36	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			02/07/20 11:23	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: P6 — **Lab Sample ID: 280-133488-1**
Date Collected: 02/03/20 12:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0240	U	0.0711	0.0711	1.00	0.145	pCi/L	02/10/20 12:07	03/03/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.4*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:14*	*1*

Client Sample ID: P7 — **Lab Sample ID: 280-133488-2**
Date Collected: 02/03/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0555	U	0.0558	0.0560	1.00	0.0871	pCi/L	02/10/20 12:07	03/03/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:14*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0541	U	0.0535	0.0538	1.00	0.0829	pCi/L	02/10/20 12:07	03/03/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:14*	*1*

Client Sample ID: PNMW1B — **Lab Sample ID: 280-133488-4**
Date Collected: 02/04/20 14:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.190**		0.0814	0.0832	1.00	0.0908	pCi/L	02/10/20 12:07	03/03/20 10:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:14*	*1*

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.171**		0.0949	0.0962	1.00	0.129	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:15*	*1*

Client Sample ID: PNMW13 — **Lab Sample ID: 280-133488-6**
Date Collected: 02/04/20 16:15 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.139**		0.0731	0.0741	1.00	0.0929	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:15*	*1*

Client Sample ID: PNMW14 — **Lab Sample ID: 280-133488-7**
Date Collected: 02/03/20 13:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0829	U	0.0772	0.0776	1.00	0.121	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*02/10/20 12:07*	*03/03/20 10:15*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW15
Date Collected: 02/04/20 12:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.164		0.0784	0.0798	1.00	0.0948	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110	02/10/20 12:07	03/03/20 10:15	1

Client Sample ID: PNMW16
Date Collected: 02/03/20 17:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.278		0.105	0.108	1.00	0.120	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110	02/10/20 12:07	03/03/20 10:15	1

Client Sample ID: PNMW16 DUP
Date Collected: 02/03/20 17:05
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.364		0.120	0.124	1.00	0.127	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110	02/10/20 12:07	03/03/20 10:15	1

Client Sample ID: PNMW16 EB
Date Collected: 02/03/20 18:00
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00768	U	0.0754	0.0754	1.00	0.144	pCi/L	02/10/20 12:07	03/03/20 10:15	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110	02/10/20 12:07	03/03/20 10:15	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: P6
Date Collected: 02/03/20 12:55
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.289	0.289	1.00	0.494	pCi/L	02/10/20 12:27	02/18/20 17:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.4		40 - 110	02/10/20 12:27	02/18/20 17:18	1

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

Client Sample ID: P6
Date Collected: 02/03/20 12:55
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	86.0		40 - 110	02/10/20 12:27	02/18/20 17:18	1

Client Sample ID: P7
Date Collected: 02/03/20 15:30
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.333	U	0.270	0.272	1.00	0.430	pCi/L	02/10/20 12:27	02/18/20 17:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110	02/10/20 12:27	02/18/20 17:18	1
Y Carrier	86.0		40 - 110	02/10/20 12:27	02/18/20 17:18	1

Client Sample ID: P18B
Date Collected: 02/03/20 17:30
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0522	U	0.233	0.233	1.00	0.407	pCi/L	02/10/20 12:27	02/18/20 17:19	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	02/10/20 12:27	02/18/20 17:19	1
Y Carrier	88.6		40 - 110	02/10/20 12:27	02/18/20 17:19	1

Client Sample ID: PNMW1B
Date Collected: 02/04/20 14:00
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.585**		0.298	0.303	1.00	0.445	pCi/L	02/10/20 12:27	02/18/20 17:19	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.5		40 - 110	02/10/20 12:27	02/18/20 17:19	1
Y Carrier	84.9		40 - 110	02/10/20 12:27	02/18/20 17:19	1

Client Sample ID: PNMW2B
Date Collected: 02/04/20 15:30
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.678**		0.291	0.298	1.00	0.417	pCi/L	02/10/20 12:27	02/18/20 17:19	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110	02/10/20 12:27	02/18/20 17:19	1
Y Carrier	85.2		40 - 110	02/10/20 12:27	02/18/20 17:19	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW13 — **Lab Sample ID: 280-133488-6**
Date Collected: 02/04/20 16:15 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.278	U	0.260	0.261	1.00	0.420	pCi/L	02/10/20 12:27	02/18/20 17:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:19*	*1*
Y Carrier	*89.0*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:19*	*1*

Client Sample ID: PNMW14 — **Lab Sample ID: 280-133488-7**
Date Collected: 02/03/20 13:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0665	U	0.207	0.207	1.00	0.361	pCi/L	02/10/20 12:27	02/18/20 17:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:26*	*1*
Y Carrier	*90.1*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:26*	*1*

Client Sample ID: PNMW15 — **Lab Sample ID: 280-133488-8**
Date Collected: 02/04/20 12:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.604**		0.264	0.270	1.00	0.378	pCi/L	02/10/20 12:27	02/18/20 17:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:28*	*1*
Y Carrier	*89.0*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:28*	*1*

Client Sample ID: PNMW16 — **Lab Sample ID: 280-133488-9**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.302	U	0.246	0.248	1.00	0.390	pCi/L	02/10/20 12:27	02/18/20 17:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:28*	*1*
Y Carrier	*86.4*		*40 - 110*	*02/10/20 12:27*	*02/18/20 17:28*	*1*

Client Sample ID: PNMW16 DUP — **Lab Sample ID: 280-133488-10**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.349	U	0.248	0.250	1.00	0.386	pCi/L	02/10/20 12:27	02/18/20 17:25	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110	02/10/20 12:27	02/18/20 17:25	1
Y Carrier	87.9		40 - 110	02/10/20 12:27	02/18/20 17:25	1

Client Sample ID: PNMW16 EB — **Lab Sample ID: 280-133488-11**
Date Collected: 02/03/20 18:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0956	U	0.251	0.251	1.00	0.470	pCi/L	02/10/20 12:27	02/18/20 17:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110	02/10/20 12:27	02/18/20 17:25	1
Y Carrier	83.4		40 - 110	02/10/20 12:27	02/18/20 17:25	1

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

Client Sample ID: P6 — **Lab Sample ID: 280-133488-1**
Date Collected: 02/03/20 12:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.110	U	0.298	0.298	5.00	0.494	pCi/L		03/04/20 08:49	1

Client Sample ID: P7 — **Lab Sample ID: 280-133488-2**
Date Collected: 02/03/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.388	U	0.276	0.278	5.00	0.430	pCi/L		03/04/20 08:49	1

Client Sample ID: P18B — **Lab Sample ID: 280-133488-3**
Date Collected: 02/03/20 17:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.106	U	0.239	0.239	5.00	0.407	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW1B — **Lab Sample ID: 280-133488-4**
Date Collected: 02/04/20 14:00 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.775**		0.309	0.314	5.00	0.445	pCi/L		03/04/20 08:49	1

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

Client Sample ID: PNMW2B — **Lab Sample ID: 280-133488-5**
Date Collected: 02/04/20 15:30 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.849		0.306	0.313	5.00	0.417	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW13 — **Lab Sample ID: 280-133488-6**
Date Collected: 02/04/20 16:15 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.417	U	0.270	0.271	5.00	0.420	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW14 — **Lab Sample ID: 280-133488-7**
Date Collected: 02/03/20 13:55 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.149	U	0.221	0.221	5.00	0.361	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW15 — **Lab Sample ID: 280-133488-8**
Date Collected: 02/04/20 12:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.767		0.275	0.282	5.00	0.378	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW16 — **Lab Sample ID: 280-133488-9**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.580		0.267	0.270	5.00	0.390	pCi/L		03/04/20 08:49	1

Client Sample ID: PNMW16 DUP — **Lab Sample ID: 280-133488-10**
Date Collected: 02/03/20 17:05 — **Matrix: Water**
Date Received: 02/05/20 13:36

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.713		0.276	0.279	5.00	0.386	pCi/L		03/04/20 08:49	1

Client Sample Results

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

Job ID: 280-133488-1

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

Client Sample ID: PNMW16 EB
Date Collected: 02/03/20 18:00
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0880	U	0.262	0.262	5.00	0.470	pCi/L		03/04/20 08:49	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-422167/1-A
Matrix: Water
Analysis Batch: 422356

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		02/10/20 14:00	02/11/20 10:28	1

Lab Sample ID: LCS 240-422167/2-A
Matrix: Water
Analysis Batch: 422356

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.994		mg/L		99	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-422167/1-A
Matrix: Water
Analysis Batch: 422638

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		02/10/20 14:00	02/12/20 23:29	1
Arsenic	ND		0.0050	0.00075	mg/L		02/10/20 14:00	02/12/20 23:29	1
Barium	ND		0.0050	0.0022	mg/L		02/10/20 14:00	02/12/20 23:29	1
Beryllium	ND		0.0010	0.00031	mg/L		02/10/20 14:00	02/12/20 23:29	1
Calcium	ND		1.0	0.58	mg/L		02/10/20 14:00	02/12/20 23:29	1
Cadmium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/12/20 23:29	1
Cobalt	ND		0.0010	0.00019	mg/L		02/10/20 14:00	02/12/20 23:29	1
Chromium	ND		0.0020	0.00098	mg/L		02/10/20 14:00	02/12/20 23:29	1
Molybdenum	ND	^	0.010	0.0011	mg/L		02/10/20 14:00	02/12/20 23:29	1
Lead	ND		0.0010	0.00045	mg/L		02/10/20 14:00	02/12/20 23:29	1
Selenium	ND		0.0050	0.00089	mg/L		02/10/20 14:00	02/12/20 23:29	1
Thallium	ND		0.0010	0.00020	mg/L		02/10/20 14:00	02/12/20 23:29	1

Lab Sample ID: MB 240-422167/1-A
Matrix: Water
Analysis Batch: 422844

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0080	0.0017	mg/L		02/10/20 14:00	02/13/20 16:36	1

Lab Sample ID: LCS 240-422167/3-A
Matrix: Water
Analysis Batch: 422638

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.104		mg/L		104	80 - 120
Arsenic	1.00	1.04		mg/L		104	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	0.500	0.559		mg/L		112	80 - 120
Calcium	25.0	25.3		mg/L		101	80 - 120
Cadmium	0.500	0.499		mg/L		100	80 - 120
Cobalt	0.500	0.516		mg/L		103	80 - 120
Chromium	0.500	0.512		mg/L		102	80 - 120
Molybdenum	0.500	0.480	^	mg/L		96	80 - 120

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

Lab Sample ID: LCS 240-422167/3-A
Matrix: Water
Analysis Batch: 422638

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.511		mg/L		102	80 - 120
Selenium	1.00	1.02		mg/L		102	80 - 120
Thallium	1.00	1.01		mg/L		101	80 - 120

Lab Sample ID: LCS 240-422167/3-A
Matrix: Water
Analysis Batch: 422844

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 422167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.500	0.524		mg/L		105	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-485388/30
Matrix: Water
Analysis Batch: 485388

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 280-485388/4
Matrix: Water
Analysis Batch: 485388

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: 280-133488-8 DU
Matrix: Water
Analysis Batch: 485388

Client Sample ID: PNMW15
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.8	HF	7.8		SU		0.1	5
Temperature	24.1	HF	23.7		Degrees C		2	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-485424/6
Matrix: Water
Analysis Batch: 485424

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			02/10/20 12:23	1
Fluoride	ND		0.50	0.17	mg/L			02/10/20 12:23	1
Sulfate	ND		5.0	1.0	mg/L			02/10/20 12:23	1

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

Lab Sample ID: LCS 280-485424/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.3		mg/L		98	90 - 110
Fluoride	5.00	4.91		mg/L		98	90 - 110
Sulfate	100	97.8		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-485424/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	98.9		mg/L		99	90 - 110	1	10
Fluoride	5.00	5.02		mg/L		100	90 - 110	2	10
Sulfate	100	97.6		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-485424/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	5.04		mg/L		101	50 - 150
Fluoride	0.500	0.592		mg/L		118	50 - 150
Sulfate	5.00	4.95	J	mg/L		99	50 - 150

Lab Sample ID: 280-133488-7 MS — **Client Sample ID: PNMW14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1.3	J F1	50.0	54.6		mg/L		107	80 - 120
Fluoride	0.96		5.00	5.62		mg/L		93	80 - 120
Sulfate	20	F1	50.0	71.9		mg/L		104	80 - 120

Lab Sample ID: 280-133488-7 MSD — **Client Sample ID: PNMW14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.3	J F1	50.0	62.6	F1	mg/L		123	80 - 120	14	20
Fluoride	0.96		5.00	6.39		mg/L		109	80 - 120	13	20
Sulfate	20	F1	50.0	81.9	F1	mg/L		123	80 - 120	13	20

Lab Sample ID: 280-133488-7 DU — **Client Sample ID: PNMW14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485424

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	1.3	J F1	1.28	J	mg/L		0.2	15
Fluoride	0.96		0.966		mg/L		0.6	15
Sulfate	20	F1	20.0		mg/L		1	15

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

Lab Sample ID: MB 280-485429/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485429

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			02/10/20 12:44	1
Fluoride	ND		0.50	0.17	mg/L			02/10/20 12:44	1
Sulfate	ND		5.0	1.0	mg/L			02/10/20 12:44	1

Lab Sample ID: LCS 280-485429/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485429

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	103		mg/L		103	90 - 110
Fluoride	5.00	5.06		mg/L		101	90 - 110
Sulfate	100	100		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-485429/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485429

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	103		mg/L		103	90 - 110	0	10
Fluoride	5.00	5.08		mg/L		102	90 - 110	0	10
Sulfate	100	100		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-485429/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485429

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.68		mg/L		94	50 - 150
Fluoride	0.500	0.495	J	mg/L		99	50 - 150
Sulfate	5.00	4.39	J	mg/L		88	50 - 150

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

Lab Sample ID: MB 280-485233/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485233

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			02/07/20 08:36	1

Lab Sample ID: LCS 280-485233/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485233

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	492		mg/L		98	93 - 110

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

Lab Sample ID: LCSD 280-485233/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485233

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			500	487		mg/L		97	93 - 110	1	20

Lab Sample ID: 280-133488-1 DU — **Client Sample ID: P6**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485233

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	870			884		mg/L				1	10

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

Lab Sample ID: MB 280-485283/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			02/07/20 11:23	1

Lab Sample ID: LCS 280-485283/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485283

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	91.2		mg/L		91	79 - 114		

Lab Sample ID: LCSD 280-485283/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485283

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	100		mg/L		100	79 - 114	9	20

Lab Sample ID: MB 280-485461/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485461

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			02/10/20 12:46	1

Lab Sample ID: LCS 280-485461/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485461

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	82.0		mg/L		82	79 - 114		

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

Lab Sample ID: LCSD 280-485461/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 485461

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	90.4		mg/L		90	79 - 114	10	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-459800/21-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 462625 — **Prep Batch: 459800**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007253	U	0.0361	0.0361	1.00	0.0814	pCi/L	02/10/20 12:07	03/03/20 11:59	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*02/10/20 12:07*	*03/03/20 11:59*	*1*

Lab Sample ID: LCS 160-459800/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 462625 — **Prep Batch: 459800**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	8.658		0.901	1.00	0.111	pCi/L	76	75 - 125		

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

Lab Sample ID: LCSD 160-459800/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 462625 — **Prep Batch: 459800**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.170		0.952	1.00	0.0937	pCi/L	81	75 - 125	0.28	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-459801/21-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 460917 — **Prep Batch: 459801**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.07100	U	0.183	0.183	1.00	0.346	pCi/L	02/10/20 12:27	02/18/20 17:26	1

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

Lab Sample ID: MB 160-459801/21-A
Matrix: Water
Analysis Batch: 460917

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459801

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	02/10/20 12:27	02/18/20 17:26	1
Y Carrier	87.9		40 - 110	02/10/20 12:27	02/18/20 17:26	1

Lab Sample ID: LCS 160-459801/1-A
Matrix: Water
Analysis Batch: 460918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 459801

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.10	7.798		0.934	1.00	0.384	pCi/L	86	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	110		40 - 110
Y Carrier	87.1		40 - 110

Lab Sample ID: LCSD 160-459801/2-A
Matrix: Water
Analysis Batch: 460918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 459801

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.10	8.440		1.01	1.00	0.396	pCi/L	93	75 - 125	0.33	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	103		40 - 110
Y Carrier	87.1		40 - 110

QC Association Summary

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

Job ID: 280-133488-1

Metals

Prep Batch: 422167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total Recoverable	Water	3005A	
280-133488-2	P7	Total Recoverable	Water	3005A	
280-133488-3	P18B	Total Recoverable	Water	3005A	
280-133488-4	PNMW1B	Total Recoverable	Water	3005A	
280-133488-5	PNMW2B	Total Recoverable	Water	3005A	
280-133488-6	PNMW13	Total Recoverable	Water	3005A	
280-133488-7	PNMW14	Total Recoverable	Water	3005A	
280-133488-8	PNMW15	Total Recoverable	Water	3005A	
280-133488-9	PNMW16	Total Recoverable	Water	3005A	
280-133488-10	PNMW16 DUP	Total Recoverable	Water	3005A	
280-133488-11	PNMW16 EB	Total Recoverable	Water	3005A	
MB 240-422167/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-422167/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-422167/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 422356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total Recoverable	Water	6010C	422167
280-133488-2	P7	Total Recoverable	Water	6010C	422167
280-133488-3	P18B	Total Recoverable	Water	6010C	422167
280-133488-4	PNMW1B	Total Recoverable	Water	6010C	422167
280-133488-5	PNMW2B	Total Recoverable	Water	6010C	422167
280-133488-6	PNMW13	Total Recoverable	Water	6010C	422167
280-133488-7	PNMW14	Total Recoverable	Water	6010C	422167
280-133488-8	PNMW15	Total Recoverable	Water	6010C	422167
280-133488-9	PNMW16	Total Recoverable	Water	6010C	422167
280-133488-10	PNMW16 DUP	Total Recoverable	Water	6010C	422167
280-133488-11	PNMW16 EB	Total Recoverable	Water	6010C	422167
MB 240-422167/1-A	Method Blank	Total Recoverable	Water	6010C	422167
LCS 240-422167/2-A	Lab Control Sample	Total Recoverable	Water	6010C	422167

Analysis Batch: 422638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total Recoverable	Water	6020A	422167
280-133488-2	P7	Total Recoverable	Water	6020A	422167
280-133488-3	P18B	Total Recoverable	Water	6020A	422167
280-133488-4	PNMW1B	Total Recoverable	Water	6020A	422167
280-133488-5	PNMW2B	Total Recoverable	Water	6020A	422167
280-133488-6	PNMW13	Total Recoverable	Water	6020A	422167
280-133488-7	PNMW14	Total Recoverable	Water	6020A	422167
280-133488-8	PNMW15	Total Recoverable	Water	6020A	422167
280-133488-9	PNMW16	Total Recoverable	Water	6020A	422167
280-133488-10	PNMW16 DUP	Total Recoverable	Water	6020A	422167
280-133488-11	PNMW16 EB	Total Recoverable	Water	6020A	422167
MB 240-422167/1-A	Method Blank	Total Recoverable	Water	6020A	422167
LCS 240-422167/3-A	Lab Control Sample	Total Recoverable	Water	6020A	422167

Analysis Batch: 422844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total Recoverable	Water	6020A	422167
280-133488-2	P7	Total Recoverable	Water	6020A	422167

Metals (Continued)

Analysis Batch: 422844 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-2	P7	Total Recoverable	Water	6020A	422167
280-133488-3	P18B	Total Recoverable	Water	6020A	422167
280-133488-4	PNMW1B	Total Recoverable	Water	6020A	422167
280-133488-5	PNMW2B	Total Recoverable	Water	6020A	422167
280-133488-6	PNMW13	Total Recoverable	Water	6020A	422167
280-133488-7	PNMW14	Total Recoverable	Water	6020A	422167
280-133488-8	PNMW15	Total Recoverable	Water	6020A	422167
280-133488-9	PNMW16	Total Recoverable	Water	6020A	422167
280-133488-10	PNMW16 DUP	Total Recoverable	Water	6020A	422167
280-133488-11	PNMW16 EB	Total Recoverable	Water	6020A	422167
MB 240-422167/1-A	Method Blank	Total Recoverable	Water	6020A	422167
LCS 240-422167/3-A	Lab Control Sample	Total Recoverable	Water	6020A	422167

General Chemistry

Analysis Batch: 485233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	SM 2540C	
280-133488-2	P7	Total/NA	Water	SM 2540C	
280-133488-3	P18B	Total/NA	Water	SM 2540C	
280-133488-4	PNMW1B	Total/NA	Water	SM 2540C	
280-133488-5	PNMW2B	Total/NA	Water	SM 2540C	
280-133488-6	PNMW13	Total/NA	Water	SM 2540C	
280-133488-7	PNMW14	Total/NA	Water	SM 2540C	
280-133488-8	PNMW15	Total/NA	Water	SM 2540C	
280-133488-9	PNMW16	Total/NA	Water	SM 2540C	
280-133488-10	PNMW16 DUP	Total/NA	Water	SM 2540C	
280-133488-11	PNMW16 EB	Total/NA	Water	SM 2540C	
MB 280-485233/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-485233/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-485233/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-133488-1 DU	P6	Total/NA	Water	SM 2540C	

Analysis Batch: 485283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	SM 2540D	
280-133488-2	P7	Total/NA	Water	SM 2540D	
280-133488-3	P18B	Total/NA	Water	SM 2540D	
280-133488-4	PNMW1B	Total/NA	Water	SM 2540D	
280-133488-5	PNMW2B	Total/NA	Water	SM 2540D	
280-133488-7	PNMW14	Total/NA	Water	SM 2540D	
280-133488-8	PNMW15	Total/NA	Water	SM 2540D	
280-133488-9	PNMW16	Total/NA	Water	SM 2540D	
280-133488-10	PNMW16 DUP	Total/NA	Water	SM 2540D	
280-133488-11	PNMW16 EB	Total/NA	Water	SM 2540D	
MB 280-485283/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-485283/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-485283/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

QC Association Summary

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

Job ID: 280-133488-1

General Chemistry

Analysis Batch: 485388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	9040B	
280-133488-2	P7	Total/NA	Water	9040B	
280-133488-3	P18B	Total/NA	Water	9040B	
280-133488-4	PNMW1B	Total/NA	Water	9040B	
280-133488-5	PNMW2B	Total/NA	Water	9040B	
280-133488-6	PNMW13	Total/NA	Water	9040B	
280-133488-7	PNMW14	Total/NA	Water	9040B	
280-133488-8	PNMW15	Total/NA	Water	9040B	
280-133488-9	PNMW16	Total/NA	Water	9040B	
280-133488-10	PNMW16 DUP	Total/NA	Water	9040B	
280-133488-11	PNMW16 EB	Total/NA	Water	9040B	
LCS 280-485388/30	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-485388/4	Lab Control Sample	Total/NA	Water	9040B	
280-133488-8 DU	PNMW15	Total/NA	Water	9040B	

Analysis Batch: 485424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	9056A	
280-133488-1	P6	Total/NA	Water	9056A	
280-133488-2	P7	Total/NA	Water	9056A	
280-133488-2	P7	Total/NA	Water	9056A	
280-133488-3	P18B	Total/NA	Water	9056A	
280-133488-3	P18B	Total/NA	Water	9056A	
280-133488-7	PNMW14	Total/NA	Water	9056A	
280-133488-9	PNMW16	Total/NA	Water	9056A	
280-133488-9	PNMW16	Total/NA	Water	9056A	
280-133488-10	PNMW16 DUP	Total/NA	Water	9056A	
280-133488-10	PNMW16 DUP	Total/NA	Water	9056A	
280-133488-11	PNMW16 EB	Total/NA	Water	9056A	
MB 280-485424/6	Method Blank	Total/NA	Water	9056A	
LCS 280-485424/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-485424/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-485424/3	Lab Control Sample	Total/NA	Water	9056A	
280-133488-7 MS	PNMW14	Total/NA	Water	9056A	
280-133488-7 MSD	PNMW14	Total/NA	Water	9056A	
280-133488-7 DU	PNMW14	Total/NA	Water	9056A	

Analysis Batch: 485429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-4	PNMW1B	Total/NA	Water	9056A	
280-133488-4	PNMW1B	Total/NA	Water	9056A	
280-133488-5	PNMW2B	Total/NA	Water	9056A	
280-133488-6	PNMW13	Total/NA	Water	9056A	
280-133488-8	PNMW15	Total/NA	Water	9056A	
280-133488-8	PNMW15	Total/NA	Water	9056A	
MB 280-485429/6	Method Blank	Total/NA	Water	9056A	
LCS 280-485429/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-485429/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-485429/3	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

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

Job ID: 280-133488-1

General Chemistry

Analysis Batch: 485461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-6	PNMW13	Total/NA	Water	SM 2540D	
MB 280-485461/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-485461/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-485461/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Rad

Prep Batch: 459800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	PrecSep-21	
280-133488-2	P7	Total/NA	Water	PrecSep-21	
280-133488-3	P18B	Total/NA	Water	PrecSep-21	
280-133488-4	PNMW1B	Total/NA	Water	PrecSep-21	
280-133488-5	PNMW2B	Total/NA	Water	PrecSep-21	
280-133488-6	PNMW13	Total/NA	Water	PrecSep-21	
280-133488-7	PNMW14	Total/NA	Water	PrecSep-21	
280-133488-8	PNMW15	Total/NA	Water	PrecSep-21	
280-133488-9	PNMW16	Total/NA	Water	PrecSep-21	
280-133488-10	PNMW16 DUP	Total/NA	Water	PrecSep-21	
280-133488-11	PNMW16 EB	Total/NA	Water	PrecSep-21	
MB 160-459800/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-459800/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-459800/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 459801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133488-1	P6	Total/NA	Water	PrecSep_0	
280-133488-2	P7	Total/NA	Water	PrecSep_0	
280-133488-3	P18B	Total/NA	Water	PrecSep_0	
280-133488-4	PNMW1B	Total/NA	Water	PrecSep_0	
280-133488-5	PNMW2B	Total/NA	Water	PrecSep_0	
280-133488-6	PNMW13	Total/NA	Water	PrecSep_0	
280-133488-7	PNMW14	Total/NA	Water	PrecSep_0	
280-133488-8	PNMW15	Total/NA	Water	PrecSep_0	
280-133488-9	PNMW16	Total/NA	Water	PrecSep_0	
280-133488-10	PNMW16 DUP	Total/NA	Water	PrecSep_0	
280-133488-11	PNMW16 EB	Total/NA	Water	PrecSep_0	
MB 160-459801/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-459801/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-459801/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: P6

Lab Sample ID: 280-133488-1

Date Collected: 02/03/20 12:55
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:26	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:24	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 16:44	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 16:44	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 16:27	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485424	02/10/20 16:43	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.96 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:14	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.96 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:18	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: P7

Lab Sample ID: 280-133488-2

Date Collected: 02/03/20 15:30
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:30	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:28	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 16:48	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		5			422844	02/13/20 16:53	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 16:48	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 17:00	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485424	02/10/20 17:16	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.12 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:14	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.12 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:18	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: P18B

Lab Sample ID: 280-133488-3

Date Collected: 02/03/20 17:30
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:35	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:32	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 16:57	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 16:52	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 17:33	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485424	02/10/20 17:49	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			1000.13 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:14	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.13 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:19	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW1B

Lab Sample ID: 280-133488-4

Date Collected: 02/04/20 14:00
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:39	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:37	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:01	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 16:57	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485429	02/10/20 17:47	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485429	02/10/20 18:04	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.65 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:14	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.65 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:19	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: PNMW2B

Lab Sample ID: 280-133488-5

Date Collected: 02/04/20 15:30
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:43	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:41	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:14	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:01	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485429	02/10/20 18:22	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.85 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.85 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:19	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW13

Lab Sample ID: 280-133488-6

Date Collected: 02/04/20 16:15
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 12:48	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:45	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:18	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:05	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485429	02/10/20 18:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485461	02/10/20 12:46	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			1000.21 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.21 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460918	02/18/20 17:19	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW14

Lab Sample ID: 280-133488-7

Date Collected: 02/03/20 13:55
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 13:01	WKD	TAL CAN

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: PNMW14

Lab Sample ID: 280-133488-7
Date Collected: 02/03/20 13:55
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:49	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:22	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:09	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 18:05	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			1000.69 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.69 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460917	02/18/20 17:26	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW15

Lab Sample ID: 280-133488-8
Date Collected: 02/04/20 12:05
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 13:05	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 00:54	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:27	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:34	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485429	02/10/20 21:17	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485429	02/10/20 21:34	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			1000.60 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.60 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460917	02/18/20 17:28	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW16

Lab Sample ID: 280-133488-9
Date Collected: 02/03/20 17:05
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 13:09	WKD	TAL CAN

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: PNMW16

Lab Sample ID: 280-133488-9

Date Collected: 02/03/20 17:05
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 01:06	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:31	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:44	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 20:50	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485424	02/10/20 21:06	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			1000.04 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.04 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460917	02/18/20 17:28	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW16 DUP

Lab Sample ID: 280-133488-10

Date Collected: 02/03/20 17:05
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 13:14	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 01:11	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:35	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:50	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 21:23	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	485424	02/10/20 21:39	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.39 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1			462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.39 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460917	02/18/20 17:25	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Client Sample ID: PNMW16 EB

Lab Sample ID: 280-133488-11

Date Collected: 02/03/20 18:00
Matrix: Water
Date Received: 02/05/20 13:36

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			422356	02/11/20 13:18	WKD	TAL CAN

Lab Chronicle

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

Job ID: 280-133488-1

Client Sample ID: PNMW16 EB

Date Collected: 02/03/20 18:00
Date Received: 02/05/20 13:36

Lab Sample ID: 280-133488-11

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	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422638	02/13/20 01:15	DTN	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	422167	02/10/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			422844	02/13/20 17:39	DTN	TAL CAN
Total/NA	Analysis	9040B		1			485388	02/07/20 17:53	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	485424	02/10/20 21:55	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	485233	02/07/20 08:36	ECL	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	485283	02/07/20 11:23	ECL	TAL DEN
Total/NA	Prep	PrecSep-21			999.98 mL	1.0 g	459800	02/10/20 12:07	MNH	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	462625	03/03/20 10:15	AJD	TAL SL
Total/NA	Prep	PrecSep_0			999.98 mL	1.0 g	459801	02/10/20 12:27	MNH	TAL SL
Total/NA	Analysis	9320		1			460917	02/18/20 17:25	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			463039	03/04/20 08:49	SMP	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-133488-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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	02-23-20
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
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	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

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

Accreditation/Certification Summary

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

Job ID: 280-133488-1

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
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	04-01-20
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	02-28-20 *
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
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

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

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Kaitlin Rainsberger	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 208-841-9707	E-Mail: darlene.bandy@testamericainc.com		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: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
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)	TDS	TSS	Ra226/228	Ra226/228	Metals (see list)	Anions (chloride, fluoride, pH, sulfate)	Total Number of containers	Special Instructions/Note:
			Preservation Code:											B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mb, Se, Tl
P6	2-3-20	1255	G	W	N	N	X	X	X	X	X	X		
P7	2-3-20	1530	G	W	N	N	X	X	X	X	X	X		
P18B	2-3-20	1730	G	W	N	N	X	X	X	X	X	X		
PNMW1B	2-4-20	1400	G	W	N	N	X	X	X	X	X	X		
PNMW2B	2-4-20	1530	G	W	N	N	X	X	X	X	X	X		
PNMW13	2-3/2-4	1105/1615	G	W	N	N	X	X	X	X	X	X		
PNMW14	2-3-20	1355	G	W	N	N	X	X	X	X	X	X		
PNMW15	2-4-20	1205	G	W	N	N	X	X	X	X	X	X		
PNMW16	2-3-20	1705	G	W	N	N	X	X	X	X	X	X		
PNMW16 DUP	2-3-20	1705	G	W	N	N	X	X	X	X	X	X		
PNMW16 EB	2-3-20	1800	G	W	N	N	X	X	X	X	X	X		

280-133488 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
Rainsberger	2-5-20 @ 1336		[signature]	02/05/20 1336	TARG

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1, 2.9, 2.8, 2.1, IR9, CF0.9, PVP, 02/05/20

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: 280-514826.1
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 #: 280-133488-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 3/5/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
P6 (280-133488-1)	2/3/20	12:55 Mountain		Water			X	X	X	2	
P7 (280-133488-2)	2/3/20	15:30 Mountain		Water			X	X	X	2	
P18B (280-133488-3)	2/3/20	17:30 Mountain		Water			X	X	X	2	
PNMW1B (280-133488-4)	2/4/20	14:00 Mountain		Water			X	X	X	2	
PNMW2B (280-133488-5)	2/4/20	15:30 Mountain		Water			X	X	X	2	
PNMW13 (280-133488-6)	2/4/20	16:15 Mountain		Water			X	X	X	2	
PNMW14 (280-133488-7)	2/3/20	13:55 Mountain		Water			X	X	X	2	
PNMW15 (280-133488-8)	2/4/20	12:05 Mountain		Water			X	X	X	2	
PNMW16 (280-133488-9)	2/3/20	17:05 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 *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
[signature]	2/7/2020 1340		[signature]	2-8-20 8:50	ETAST
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 TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-514826.2
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 #: 280-133488-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 3/5/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW16 DUP (280-133488-10)	2/3/20	17:05 Mountain		Water			X	X	X	2	
PNMW16 EB (280-133488-11)	2/3/20	18:00 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: [signature]	Date/Time: 2/7/2020 1340	Company	Received by: [signature]	Date/Time: 2·8·20 8:50	Company ETAST
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

9.0|9.7

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: 280-514825.1
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 #: 280-133488-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 2/26/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

S45

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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X			X	
P6 (280-133488-1)	2/3/20	12:55 Mountain		Water			X	X	1	, Use Collision Cell
P7 (280-133488-2)	2/3/20	15:30 Mountain		Water			X	X	1	, Use Collision Cell
P18B (280-133488-3)	2/3/20	17:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW1B (280-133488-4)	2/4/20	14:00 Mountain		Water			X	X	1	, Use Collision Cell
PNMW2B (280-133488-5)	2/4/20	15:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW13 (280-133488-6)	2/4/20	16:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW14 (280-133488-7)	2/3/20	13:55 Mountain		Water			X	X	1	, Use Collision Cell
PNMW15 (280-133488-8)	2/4/20	12:05 Mountain		Water			X	X	1	, Use Collision Cell
PNMW16 (280-133488-9)	2/3/20	17:05 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 complicance to Eurofins TestAmerica.

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/7/20 1350		[signature]	2-8-20 935	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, 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: 280-514825.2
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 #: 280-133488-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 2/26/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

S45

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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW16 DUP (280-133488-10)	2/3/20	17:05 Mountain		Water			X	X	1	, Use Collision Cell
PNMW16 EB (280-133488-11)	2/3/20	18:00 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 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: [signature]	Date/Time: 2/7/2020 1350	Company	Received by: [signature]	Date/Time: 2-8-20 935	Company: ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 01/16/2019

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

Client ETA Denver Site Name_____ Cooler unpacked by: MM

Cooler Received on 2-8-20 Opened on 2-8-20

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. 9.0 °C Corrected Cooler Temp. 9.7 °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# **HC995364**
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: 280-133488-1

Login Number: 133488
List Number: 1
Creator: Zimmerman, Steven M

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.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-133488-1

Login Number: 133488
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 02/08/20 12:50 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	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.	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.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

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

Job ID: 280-133488-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-133488-1	P6	87.4
280-133488-2	P7	98.2
280-133488-3	P18B	101
280-133488-4	PNMW1B	97.5
280-133488-5	PNMW2B	98.5
280-133488-6	PNMW13	102
280-133488-7	PNMW14	101
280-133488-8	PNMW15	99.7
280-133488-9	PNMW16	92.6
280-133488-10	PNMW16 DUP	93.5
280-133488-11	PNMW16 EB	81.8
LCS 160-459800/1-A	Lab Control Sample	110
LCSD 160-459800/2-A	Lab Control Sample Dup	103
MB 160-459800/21-A	Method Blank	103

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-133488-1	P6	87.4	86.0
280-133488-2	P7	98.2	86.0
280-133488-3	P18B	101	88.6
280-133488-4	PNMW1B	97.5	84.9
280-133488-5	PNMW2B	98.5	85.2
280-133488-6	PNMW13	102	89.0
280-133488-7	PNMW14	101	90.1
280-133488-8	PNMW15	99.7	89.0
280-133488-9	PNMW16	92.6	86.4
280-133488-10	PNMW16 DUP	93.5	87.9
280-133488-11	PNMW16 EB	81.8	83.4
LCS 160-459801/1-A	Lab Control Sample	110	87.1
LCSD 160-459801/2-A	Lab Control Sample Dup	103	87.1
MB 160-459801/21-A	Method Blank	103	87.9

Percent Yield (Acceptance Limits)

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: 280-136273-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
6/9/2020 12:26:49 AM

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

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-136273-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
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: 280-136273-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-136273-1

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

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

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

RECEIPT
The samples were received on 5/7/2020 3:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.5º C and 6.0º C.

Receipt Exceptions
The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7) and PNMW-22-DUP (280-136273-8). The container labels do not list the sample time for any containers.

TOTAL RECOVERABLE METALS
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/13/2020 and analyzed on 05/15/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/13/2020 and analyzed on 05/15/2020 and 05/19/2020.

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.

TOTAL MERCURY
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on

Job ID: 280-136273-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

05/13/2020 and analyzed on 05/14/2020.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/08/2020.

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

TOTAL SUSPENDED SOLIDS
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/11/2020.

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

CORROSIVITY (PH)
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/07/2020 and 05/08/2020.

Sample PNMW-19-EB (280-136273-9) pH did not equilibrate to 0.05 pH units after 3 measurements. 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 PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) 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 PNMW-17 (280-136273-1)[5X], PNMW-18 (280-136273-2)[10X], PNMW-18 (280-136273-2)[5X], PNMW-20 (280-136273-4)[10X], PNMW-20 (280-136273-4)[50X], PNMW-21 (280-136273-5)[5X], PNMW-22 (280-136273-6)[5X], PNMW-23 (280-136273-7)[10X] and PNMW-22-DUP (280-136273-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/14/2020 and analyzed on 06/05/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9). 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.

Job ID: 280-136273-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

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-228

Samples PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/14/2020 and analyzed on 06/01/2020.

Insufficient sample volume was available to perform a sample duplicate for the following samples: PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9). 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 PNMW-17 (280-136273-1), PNMW-18 (280-136273-2), PNMW-19 (280-136273-3), PNMW-20 (280-136273-4), PNMW-21 (280-136273-5), PNMW-22 (280-136273-6), PNMW-23 (280-136273-7), PNMW-22-DUP (280-136273-8) and PNMW-19-EB (280-136273-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/05/2020.

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

Detection Summary

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

Job ID: 280-136273-1

Client Sample ID: PNMW-17 — Lab Sample ID: 280-136273-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.17		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.066		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	250		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00021	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0045		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0048	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.016		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.0010		0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Lithium	0.042		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	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	500		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1100		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	24		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-18 — Lab Sample ID: 280-136273-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.22		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.00063	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Barium	0.067		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00040	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	300		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00034	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.021		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0074	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0033	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.0014		0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Lithium	0.036		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	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	400		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	1200		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2300		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-136273-1

Client Sample ID: PNMW-19 — Lab Sample ID: 280-136273-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.029	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.23		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	83		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0011	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0027	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0022	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00055	J	0.0010	0.00020	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	19.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	35		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	68		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	410		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-20 — Lab Sample ID: 280-136273-4

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	0.018		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	470		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00028	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.00020	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Lead	0.00067	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0072		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.076		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	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200		30	10	mg/L	10		9056A	Total/NA
Fluoride	6.5		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4400		250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	7900		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-136273-1

Client Sample ID: PNMW-21 — Lab Sample ID: 280-136273-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.16		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.050		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	190		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	0.0042	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0028	J	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	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.21	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	620		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	25		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-22 — Lab Sample ID: 280-136273-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.15		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.083		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	300		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	0.0030		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0033	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00049	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	0.058		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	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	220		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.19	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	970		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	14		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-136273-1

Client Sample ID: PNMW-23 — Lab Sample ID: 280-136273-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.032		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	300		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0020		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	0.0025	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.041		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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1400		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2200		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-22-DUP — Lab Sample ID: 280-136273-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.15		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.081		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	310		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00019	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	0.0032	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0052		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.056		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	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	210		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.20	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	950		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-19-EB — Lab Sample ID: 280-136273-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	140	J	200	94	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-136273-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-136273-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136273-1	PNMW-17	Water	05/04/20 21:10	05/07/20 15:10	
280-136273-2	PNMW-18	Water	05/05/20 12:30	05/07/20 15:10	
280-136273-3	PNMW-19	Water	05/06/20 13:00	05/07/20 15:10	
280-136273-4	PNMW-20	Water	05/04/20 16:30	05/07/20 15:10	
280-136273-5	PNMW-21	Water	05/04/20 13:05	05/07/20 15:10	
280-136273-6	PNMW-22	Water	05/05/20 17:15	05/07/20 15:10	
280-136273-7	PNMW-23	Water	05/05/20 14:30	05/07/20 15:10	
280-136273-8	PNMW-22-DUP	Water	05/05/20 17:15	05/07/20 15:10	
280-136273-9	PNMW-19-EB	Water	05/06/20 10:00	05/07/20 15:10	

Client Sample Results

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

Job ID: 280-136273-1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136273-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.17		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 00:38	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-136273-2**
Date Collected: 05/05/20 12:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.22		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 00:52	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-136273-3**
Date Collected: 05/06/20 13:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.029	J	0.10	0.023	mg/L		05/13/20 14:00	05/15/20 00:56	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-136273-4**
Date Collected: 05/04/20 16:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:01	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136273-5**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.16		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:14	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136273-6**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.15		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:19	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136273-7**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:23	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-136273-8**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.15		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:28	1

Client Sample ID: PNMW-19-EB — **Lab Sample ID: 280-136273-9**
Date Collected: 05/06/20 10:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:32	1

Client Sample Results

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

Job ID: 280-136273-1

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

Client Sample ID: PNMW-17
Date Collected: 05/04/20 21:10
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 21:44	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:24	1
Barium	**0.066**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 21:44	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 21:44	1
Calcium	**250**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:24	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 21:44	1
Cobalt	**0.00021**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 21:44	1
Chromium	**0.0045**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:24	1
Molybdenum	**0.0048**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 21:44	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 21:44	1
Selenium	**0.016**		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:24	1
Thallium	**0.0010**		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 21:44	1
Lithium	**0.042**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 21:44	1

Client Sample ID: PNMW-18
Date Collected: 05/05/20 12:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00063**	**J**	0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:14	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:36	1
Barium	**0.067**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:14	1
Beryllium	**0.00040**	**J**	0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:14	1
Calcium	**300**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:36	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:14	1
Cobalt	**0.00034**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:14	1
Chromium	**0.021**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:36	1
Molybdenum	**0.0074**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:14	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:14	1
Selenium	**0.0033**	**J**	0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:36	1
Thallium	**0.0014**		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:14	1
Lithium	**0.036**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:14	1

Client Sample ID: PNMW-19
Date Collected: 05/06/20 13:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:18	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:38	1
Barium	**0.23**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:18	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:18	1
Calcium	**83**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:38	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:18	1
Cobalt	ND		0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:18	1
Chromium	**0.0011**	**J**	0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:38	1
Molybdenum	**0.0027**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:18	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:18	1
Selenium	**0.0022**	**J**	0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:38	1
Thallium	**0.00055**	**J**	0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:18	1
Lithium	**0.027**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:18	1

Client Sample Results

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

Job ID: 280-136273-1

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

Client Sample ID: PNMW-20
Date Collected: 05/04/20 16:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:30	1
Arsenic	**0.0011**	**J**	0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:46	1
Barium	**0.018**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:30	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:30	1
Calcium	**470**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:46	1
Cadmium	**0.00028**	**J**	0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:30	1
Cobalt	**0.00020**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:30	1
Chromium	ND		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:46	1
Molybdenum	ND		0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:30	1
Lead	**0.00067**	**J**	0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:30	1
Selenium	**0.0072**		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:46	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:30	1
Lithium	**0.076**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:30	1

Client Sample ID: PNMW-21
Date Collected: 05/04/20 13:05
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:35	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:48	1
Barium	**0.050**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:35	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:35	1
Calcium	**190**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:48	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:35	1
Cobalt	**0.00020**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:35	1
Chromium	**0.0022**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:48	1
Molybdenum	**0.0042**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:35	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:35	1
Selenium	**0.0028**	**J**	0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:48	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:35	1
Lithium	**0.053**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:35	1

Client Sample ID: PNMW-22
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:39	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:51	1
Barium	**0.083**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:39	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:39	1
Calcium	**300**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:51	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:39	1
Cobalt	**0.00024**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:39	1
Chromium	**0.0030**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:51	1
Molybdenum	**0.0033**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:39	1
Lead	**0.00049**	**J**	0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:39	1
Selenium	**0.0054**		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:51	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:39	1
Lithium	**0.058**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:39	1

Client Sample Results

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

Job ID: 280-136273-1

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

Client Sample ID: PNMW-23
Date Collected: 05/05/20 14:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:43	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:53	1
Barium	**0.032**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:43	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:43	1
Calcium	**300**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:53	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:43	1
Cobalt	ND		0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:43	1
Chromium	**0.0020**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:53	1
Molybdenum	ND		0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:43	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:43	1
Selenium	**0.0025**	**J**	0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:53	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:43	1
Lithium	**0.041**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:43	1

Client Sample ID: PNMW-22-DUP
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:47	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:56	1
Barium	**0.081**		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:47	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:47	1
Calcium	**310**		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:56	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:47	1
Cobalt	**0.00019**	**J**	0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:47	1
Chromium	**0.0024**		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:56	1
Molybdenum	**0.0032**	**J**	0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:47	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:47	1
Selenium	**0.0052**		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:56	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:47	1
Lithium	**0.056**		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:47	1

Client Sample ID: PNMW-19-EB
Date Collected: 05/06/20 10:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 22:52	1
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:58	1
Barium	ND		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 22:52	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 22:52	1
Calcium	ND		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:58	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:52	1
Cobalt	ND		0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 22:52	1
Chromium	ND		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:58	1
Molybdenum	ND		0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 22:52	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 22:52	1
Selenium	ND		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:58	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 22:52	1
Lithium	ND		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 22:52	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136273-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:45	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-136273-2**
Date Collected: 05/05/20 12:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:52	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-136273-3**
Date Collected: 05/06/20 13:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:54	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-136273-4**
Date Collected: 05/04/20 16:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:56	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136273-5**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:58	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136273-6**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 16:04	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136273-7**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 16:06	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-136273-8**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 16:08	1

Client Sample ID: PNMW-19-EB — **Lab Sample ID: 280-136273-9**
Date Collected: 05/06/20 10:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 16:10	1

General Chemistry

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136273-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:00	1
Temperature	20.4	HF	1.0	1.0	Degrees C			05/07/20 21:00	1
Chloride	270		15	5.1	mg/L			05/21/20 20:05	5
Fluoride	ND		0.50	0.17	mg/L			05/21/20 19:49	1
Sulfate	500		25	5.2	mg/L			05/21/20 20:05	5
Total Dissolved Solids (TDS)	1100		20	9.4	mg/L			05/08/20 10:34	1
Total Suspended Solids	24		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-136273-2**
Date Collected: 05/05/20 12:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:05	1
Temperature	20.2	HF	1.0	1.0	Degrees C			05/07/20 21:05	1
Chloride	400		15	5.1	mg/L			05/21/20 21:11	5
Fluoride	ND		0.50	0.17	mg/L			05/21/20 20:54	1
Sulfate	1200		50	10	mg/L			05/22/20 20:20	10
Total Dissolved Solids (TDS)	2300		40	19	mg/L			05/08/20 10:34	1
Total Suspended Solids	10		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-136273-3**
Date Collected: 05/06/20 13:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:08	1
Temperature	19.3	HF	1.0	1.0	Degrees C			05/07/20 21:08	1
Chloride	35		3.0	1.0	mg/L			05/21/20 21:27	1
Fluoride	0.24	J	0.50	0.17	mg/L			05/21/20 21:27	1
Sulfate	68		5.0	1.0	mg/L			05/21/20 21:27	1
Total Dissolved Solids (TDS)	410		10	4.7	mg/L			05/08/20 10:34	1
Total Suspended Solids	10		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-136273-4**
Date Collected: 05/04/20 16:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:15	1
Temperature	19.8	HF	1.0	1.0	Degrees C			05/07/20 21:15	1
Chloride	1200		30	10	mg/L			05/22/20 21:13	10
Fluoride	6.5		0.50	0.17	mg/L			05/21/20 22:00	1
Sulfate	4400		250	52	mg/L			05/22/20 21:30	50
Total Dissolved Solids (TDS)	7900		100	47	mg/L			05/08/20 10:34	1
Total Suspended Solids	8.8		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136273-5**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:19	1
Temperature	20.3	HF	1.0	1.0	Degrees C			05/07/20 21:19	1

General Chemistry (Continued)

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136273-5**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	250		15	5.1	mg/L			05/21/20 22:49	5
Fluoride	0.21	J	0.50	0.17	mg/L			05/21/20 22:33	1
Sulfate	620		25	5.2	mg/L			05/21/20 22:49	5
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			05/08/20 10:34	1
Total Suspended Solids	25		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136273-6**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:34	1
Temperature	21.5	HF	1.0	1.0	Degrees C			05/07/20 21:34	1
Chloride	220		15	5.1	mg/L			05/21/20 23:22	5
Fluoride	0.19	J	0.50	0.17	mg/L			05/21/20 23:06	1
Sulfate	970		25	5.2	mg/L			05/21/20 23:22	5
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L			05/08/20 10:34	1
Total Suspended Solids	14		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136273-7**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:38	1
Temperature	20.6	HF	1.0	1.0	Degrees C			05/07/20 21:38	1
Chloride	110		3.0	1.0	mg/L			05/22/20 00:11	1
Fluoride	1.3		0.50	0.17	mg/L			05/22/20 00:11	1
Sulfate	1400		50	10	mg/L			05/22/20 21:48	10
Total Dissolved Solids (TDS)	2200		20	9.4	mg/L			05/08/20 10:34	1
Total Suspended Solids	8.8		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-136273-8**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

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			05/07/20 21:43	1
Temperature	20.5	HF	1.0	1.0	Degrees C			05/07/20 21:43	1
Chloride	210		15	5.1	mg/L			05/22/20 01:00	5
Fluoride	0.20	J	0.50	0.17	mg/L			05/22/20 00:44	1
Sulfate	950		25	5.2	mg/L			05/22/20 01:00	5
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L			05/08/20 10:34	1
Total Suspended Solids	12		4.0	1.1	mg/L			05/11/20 10:01	1

Client Sample ID: PNMW-19-EB — **Lab Sample ID: 280-136273-9**
Date Collected: 05/06/20 10:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU			05/08/20 22:06	1
Temperature	21.0	HF	1.0	1.0	Degrees C			05/08/20 22:06	1
Chloride	ND		3.0	1.0	mg/L			05/22/20 01:17	1
Fluoride	ND		0.50	0.17	mg/L			05/22/20 01:17	1

General Chemistry (Continued)

Client Sample ID: PNMW-19-EB — **Lab Sample ID: 280-136273-9**
Date Collected: 05/06/20 10:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			05/22/20 01:17	1
Total Dissolved Solids (TDS)	**140**	**J**	200	94	mg/L			05/08/20 10:34	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/11/20 10:01	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136273-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.147**		0.108	0.108	1.00	0.145	pCi/L	05/14/20 12:45	06/05/20 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.8*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:50*	*1*

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-136273-2**
Date Collected: 05/05/20 12:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0300	U	0.0731	0.0732	1.00	0.140	pCi/L	05/14/20 12:45	06/05/20 05:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.9*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:50*	*1*

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-136273-3**
Date Collected: 05/06/20 13:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.280**		0.132	0.134	1.00	0.141	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.5*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-136273-4**
Date Collected: 05/04/20 16:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.208**		0.116	0.118	1.00	0.137	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.2*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-21
Date Collected: 05/04/20 13:05
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.141	U	0.105	0.106	1.00	0.146	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.3*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Client Sample ID: PNMW-22
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.210**		0.118	0.119	1.00	0.144	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.7*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Client Sample ID: PNMW-23
Date Collected: 05/05/20 14:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.156	U	0.114	0.114	1.00	0.162	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.6*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Client Sample ID: PNMW-22-DUP
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.198**		0.128	0.129	1.00	0.166	pCi/L	05/14/20 12:45	06/05/20 05:51	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.8*		*40 - 110*	*05/14/20 12:45*	*06/05/20 05:51*	*1*

Client Sample ID: PNMW-19-EB
Date Collected: 05/06/20 10:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0205	U	0.0722	0.0722	1.00	0.161	pCi/L	05/14/20 12:45	06/05/20 06:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.7*		*40 - 110*	*05/14/20 12:45*	*06/05/20 06:20*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-17
Date Collected: 05/04/20 21:10
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0672	U	0.373	0.373	1.00	0.673	pCi/L	05/14/20 13:17	06/01/20 13:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.8*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*
Y Carrier	*81.9*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*

Client Sample ID: PNMW-18
Date Collected: 05/05/20 12:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.508	U	0.385	0.388	1.00	0.607	pCi/L	05/14/20 13:17	06/01/20 13:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.9*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*
Y Carrier	*84.1*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*

Client Sample ID: PNMW-19
Date Collected: 05/06/20 13:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.275	U	0.359	0.360	1.00	0.597	pCi/L	05/14/20 13:17	06/01/20 13:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*73.5*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*
Y Carrier	*79.3*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*

Client Sample ID: PNMW-20
Date Collected: 05/04/20 16:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.443	U	0.407	0.409	1.00	0.657	pCi/L	05/14/20 13:17	06/01/20 13:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.2*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*
Y Carrier	*70.7*		*40 - 110*	*05/14/20 13:17*	*06/01/20 13:58*	*1*

Client Sample ID: PNMW-21
Date Collected: 05/04/20 13:05
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.622**		0.337	0.342	1.00	0.504	pCi/L	05/14/20 13:17	06/01/20 13:58	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110	05/14/20 13:17	06/01/20 13:58	1
Y Carrier	83.4		40 - 110	05/14/20 13:17	06/01/20 13:58	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136273-6**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0112	U	0.317	0.317	1.00	0.565	pCi/L	05/14/20 13:17	06/01/20 13:58	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.7		40 - 110	05/14/20 13:17	06/01/20 13:58	1
Y Carrier	81.9		40 - 110	05/14/20 13:17	06/01/20 13:58	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136273-7**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.196	U	0.271	0.271	1.00	0.452	pCi/L	05/14/20 13:17	06/01/20 14:02	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110	05/14/20 13:17	06/01/20 14:02	1
Y Carrier	81.5		40 - 110	05/14/20 13:17	06/01/20 14:02	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-136273-8**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.219	U	0.299	0.300	1.00	0.500	pCi/L	05/14/20 13:17	06/01/20 14:02	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	67.8		40 - 110	05/14/20 13:17	06/01/20 14:02	1
Y Carrier	82.6		40 - 110	05/14/20 13:17	06/01/20 14:02	1

Client Sample ID: PNMW-19-EB — **Lab Sample ID: 280-136273-9**
Date Collected: 05/06/20 10:00 — **Matrix: Water**
Date Received: 05/07/20 15:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0505	U	0.269	0.269	1.00	0.488	pCi/L	05/14/20 13:17	06/01/20 14:02	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.7		40 - 110	05/14/20 13:17	06/01/20 14:02	1
Y Carrier	86.7		40 - 110	05/14/20 13:17	06/01/20 14:02	1

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

Client Sample ID: PNMW-17
Date Collected: 05/04/20 21:10
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0800	U	0.388	0.388	5.00	0.673	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-18
Date Collected: 05/05/20 12:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.538	U	0.392	0.395	5.00	0.607	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-19
Date Collected: 05/06/20 13:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.555	U	0.382	0.384	5.00	0.597	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-20
Date Collected: 05/04/20 16:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.652	U	0.423	0.426	5.00	0.657	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-21
Date Collected: 05/04/20 13:05
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.763**		0.353	0.358	5.00	0.504	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-22
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.199	U	0.338	0.339	5.00	0.565	pCi/L		06/05/20 09:33	1

Client Sample Results

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

Job ID: 280-136273-1

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

Client Sample ID: PNMW-23
Date Collected: 05/05/20 14:30
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.352	U	0.294	0.294	5.00	0.452	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-22-DUP
Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.417	U	0.325	0.327	5.00	0.500	pCi/L		06/05/20 09:33	1

Client Sample ID: PNMW-19-EB
Date Collected: 05/06/20 10:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0710	U	0.279	0.279	5.00	0.488	pCi/L		06/05/20 09:33	1

QC Sample Results

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

Job ID: 280-136273-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-434185/1-A
Matrix: Water
Analysis Batch: 434478

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/13/20 14:00	05/14/20 23:58	1

Lab Sample ID: LCS 240-434185/2-A
Matrix: Water
Analysis Batch: 434478

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.08		mg/L		108	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-434185/1-A
Matrix: Water
Analysis Batch: 434652

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/13/20 14:00	05/15/20 21:36	1
Barium	ND		0.0050	0.0022	mg/L		05/13/20 14:00	05/15/20 21:36	1
Beryllium	ND		0.0010	0.00031	mg/L		05/13/20 14:00	05/15/20 21:36	1
Cadmium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 21:36	1
Cobalt	ND		0.0010	0.00019	mg/L		05/13/20 14:00	05/15/20 21:36	1
Molybdenum	ND		0.010	0.0011	mg/L		05/13/20 14:00	05/15/20 21:36	1
Lead	ND		0.0010	0.00045	mg/L		05/13/20 14:00	05/15/20 21:36	1
Thallium	ND		0.0010	0.00020	mg/L		05/13/20 14:00	05/15/20 21:36	1
Lithium	ND		0.0080	0.0017	mg/L		05/13/20 14:00	05/15/20 21:36	1

Lab Sample ID: MB 240-434185/1-A
Matrix: Water
Analysis Batch: 434985

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		05/13/20 14:00	05/19/20 21:19	1
Calcium	ND		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:19	1
Chromium	ND		0.0020	0.00098	mg/L		05/13/20 14:00	05/19/20 21:19	1
Selenium	ND		0.0050	0.00089	mg/L		05/13/20 14:00	05/19/20 21:19	1

Lab Sample ID: LCS 240-434185/3-A
Matrix: Water
Analysis Batch: 434652

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.107		mg/L		107	80 - 120
Barium	1.00	1.04		mg/L		104	80 - 120
Beryllium	0.500	0.500		mg/L		100	80 - 120
Cadmium	0.500	0.494		mg/L		99	80 - 120
Cobalt	0.500	0.466		mg/L		93	80 - 120
Molybdenum	0.500	0.473		mg/L		95	80 - 120
Lead	0.500	0.541		mg/L		108	80 - 120
Thallium	1.00	1.09		mg/L		109	80 - 120
Lithium	0.500	0.517		mg/L		103	80 - 120

QC Sample Results

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

Job ID: 280-136273-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: LCS 240-434185/3-A
Matrix: Water
Analysis Batch: 434985

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.959		mg/L		96	80 - 120
Calcium	25.0	25.5		mg/L		102	80 - 120
Chromium	0.500	0.523		mg/L		105	80 - 120
Selenium	1.00	0.936		mg/L		94	80 - 120

Lab Sample ID: 280-136273-1 MS
Matrix: Water
Analysis Batch: 434652

Client Sample ID: PNMW-17
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		0.100	0.111		mg/L		111	75 - 125
Barium	0.066		1.00	1.13		mg/L		107	75 - 125
Beryllium	ND		0.500	0.531		mg/L		106	75 - 125
Cadmium	ND		0.500	0.479		mg/L		96	75 - 125
Cobalt	0.00021	J	0.500	0.474		mg/L		95	75 - 125
Molybdenum	0.0048	J	0.500	0.509		mg/L		101	75 - 125
Lead	ND		0.500	0.527		mg/L		105	75 - 125
Thallium	0.0010		1.00	1.07		mg/L		106	75 - 125
Lithium	0.042		0.500	0.587		mg/L		109	75 - 125

Lab Sample ID: 280-136273-1 MS
Matrix: Water
Analysis Batch: 434985

Client Sample ID: PNMW-17
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		1.00	1.02		mg/L		102	75 - 125
Calcium	250		25.0	278	4	mg/L		109	75 - 125
Chromium	0.0045		0.500	0.542		mg/L		108	75 - 125
Selenium	0.016		1.00	0.983		mg/L		97	75 - 125

Lab Sample ID: 280-136273-1 MSD
Matrix: Water
Analysis Batch: 434652

Client Sample ID: PNMW-17
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		0.100	0.108		mg/L		108	75 - 125	3	20
Barium	0.066		1.00	1.12		mg/L		106	75 - 125	1	20
Beryllium	ND		0.500	0.515		mg/L		103	75 - 125	3	20
Cadmium	ND		0.500	0.474		mg/L		95	75 - 125	1	20
Cobalt	0.00021	J	0.500	0.465		mg/L		93	75 - 125	2	20
Molybdenum	0.0048	J	0.500	0.499		mg/L		99	75 - 125	2	20
Lead	ND		0.500	0.519		mg/L		104	75 - 125	1	20
Thallium	0.0010		1.00	1.06		mg/L		106	75 - 125	0	20
Lithium	0.042		0.500	0.571		mg/L		106	75 - 125	3	20

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

Lab Sample ID: 280-136273-1 MSD — **Client Sample ID: PNMW-17**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 434985 — **Prep Batch: 434185**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	0.998		mg/L		100	75 - 125	2	20
Calcium	250		25.0	273	4	mg/L		85	75 - 125	2	20
Chromium	0.0045		0.500	0.531		mg/L		105	75 - 125	2	20
Selenium	0.016		1.00	0.984		mg/L		97	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-434186/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 434483 — **Prep Batch: 434186**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/13/20 12:00	05/14/20 15:30	1

Lab Sample ID: LCS 240-434186/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 434483 — **Prep Batch: 434186**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.96		ug/L		99	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-494153/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494153

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 280-494316/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494316

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 280-495713/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/21/20 14:10	1
Fluoride	ND		0.50	0.17	mg/L			05/21/20 14:10	1
Sulfate	ND		5.0	1.0	mg/L			05/21/20 14:10	1

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

Lab Sample ID: LCS 280-495713/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.0		mg/L		96	90 - 110
Fluoride	5.00	4.66		mg/L		93	90 - 110
Sulfate	100	94.2		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-495713/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495713

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.3		mg/L		95	90 - 110	1	10
Fluoride	5.00	4.64		mg/L		93	90 - 110	0	10
Sulfate	100	93.5		mg/L		94	90 - 110	1	10

Lab Sample ID: MRL 280-495713/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495713

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	0.494	J	mg/L		99	50 - 150
Sulfate	5.00	4.27	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-495877/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495877

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/22/20 13:55	1
Sulfate	ND		5.0	1.0	mg/L			05/22/20 13:55	1

Lab Sample ID: LCS 280-495877/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495877

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

Lab Sample ID: LCSD 280-495877/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495877

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	97.6		mg/L		98	90 - 110	0	10
Sulfate	100	97.1		mg/L		97	90 - 110	0	10

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

Lab Sample ID: MRL 280-495877/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 495877

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.63		mg/L		93	50 - 150
Sulfate	5.00	4.40	J	mg/L		88	50 - 150

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

Lab Sample ID: MB 280-494175/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494175

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/08/20 10:34	1

Lab Sample ID: LCS 280-494175/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494175

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	465		mg/L		93	93 - 110

Lab Sample ID: LCSD 280-494175/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494175

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	470		mg/L		94	93 - 110	1	20

Lab Sample ID: 280-136273-1 DU — **Client Sample ID: PNMW-17**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494175

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	1100		1250		mg/L		9	10

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

Lab Sample ID: MB 280-494333/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494333

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/11/20 10:01	1

Lab Sample ID: LCS 280-494333/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494333

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

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

Lab Sample ID: LCSD 280-494333/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494333

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	103		mg/L		103	79 - 114	9	20

Lab Sample ID: 280-136273-1 DU — **Client Sample ID: PNMW-17**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 494333

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	24			22.4		mg/L				9	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-470435/23-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 472441 — **Prep Batch: 470435**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1210	U	0.108	0.108	1.00	0.164	pCi/L	05/14/20 12:45	06/05/20 06:21	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*05/14/20 12:45*	*06/05/20 06:21*	*1*

Lab Sample ID: LCS 160-470435/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 472436 — **Prep Batch: 470435**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	11.60		1.29	1.00	0.124	pCi/L	102	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*72.3*		*40 - 110*

Lab Sample ID: LCSD 160-470435/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 472436 — **Prep Batch: 470435**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.11		1.14	1.00	0.188	pCi/L	89	75 - 125	0.61	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*77.7*		*40 - 110*

QC Sample Results

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

Job ID: 280-136273-1

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-470476/23-A
Matrix: Water
Analysis Batch: 471628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 470476

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3179	U	0.247	0.249	1.00	0.388	pCi/L	05/14/20 13:17	06/01/20 14:04	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*05/14/20 13:17*	*06/01/20 14:04*	*1*
Y Carrier	*85.2*		*40 - 110*	*05/14/20 13:17*	*06/01/20 14:04*	*1*

Lab Sample ID: LCS 160-470476/1-A
Matrix: Water
Analysis Batch: 471626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 470476

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.79	10.64		1.35	1.00	0.642	pCi/L	121	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*72.3*		*40 - 110*
Y Carrier	*76.3*		*40 - 110*

Lab Sample ID: LCSD 160-470476/2-A
Matrix: Water
Analysis Batch: 471626

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 470476

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.79	9.806		1.21	1.00	0.517	pCi/L	112	75 - 125	0.32	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*77.7*		*40 - 110*
Y Carrier	*83.0*		*40 - 110*

QC Association Summary

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

Job ID: 280-136273-1

Metals

Prep Batch: 434185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total Recoverable	Water	3005A	
280-136273-2	PNMW-18	Total Recoverable	Water	3005A	
280-136273-3	PNMW-19	Total Recoverable	Water	3005A	
280-136273-4	PNMW-20	Total Recoverable	Water	3005A	
280-136273-5	PNMW-21	Total Recoverable	Water	3005A	
280-136273-6	PNMW-22	Total Recoverable	Water	3005A	
280-136273-7	PNMW-23	Total Recoverable	Water	3005A	
280-136273-8	PNMW-22-DUP	Total Recoverable	Water	3005A	
280-136273-9	PNMW-19-EB	Total Recoverable	Water	3005A	
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-434185/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-434185/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-136273-1 MS	PNMW-17	Total Recoverable	Water	3005A	
280-136273-1 MSD	PNMW-17	Total Recoverable	Water	3005A	

Prep Batch: 434186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	7470A	
280-136273-2	PNMW-18	Total/NA	Water	7470A	
280-136273-3	PNMW-19	Total/NA	Water	7470A	
280-136273-4	PNMW-20	Total/NA	Water	7470A	
280-136273-5	PNMW-21	Total/NA	Water	7470A	
280-136273-6	PNMW-22	Total/NA	Water	7470A	
280-136273-7	PNMW-23	Total/NA	Water	7470A	
280-136273-8	PNMW-22-DUP	Total/NA	Water	7470A	
280-136273-9	PNMW-19-EB	Total/NA	Water	7470A	
MB 240-434186/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-434186/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 434478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total Recoverable	Water	6010C	434185
280-136273-2	PNMW-18	Total Recoverable	Water	6010C	434185
280-136273-3	PNMW-19	Total Recoverable	Water	6010C	434185
280-136273-4	PNMW-20	Total Recoverable	Water	6010C	434185
280-136273-5	PNMW-21	Total Recoverable	Water	6010C	434185
280-136273-6	PNMW-22	Total Recoverable	Water	6010C	434185
280-136273-7	PNMW-23	Total Recoverable	Water	6010C	434185
280-136273-8	PNMW-22-DUP	Total Recoverable	Water	6010C	434185
280-136273-9	PNMW-19-EB	Total Recoverable	Water	6010C	434185
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	6010C	434185
LCS 240-434185/2-A	Lab Control Sample	Total Recoverable	Water	6010C	434185

Analysis Batch: 434483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	7470A	434186
280-136273-2	PNMW-18	Total/NA	Water	7470A	434186
280-136273-3	PNMW-19	Total/NA	Water	7470A	434186
280-136273-4	PNMW-20	Total/NA	Water	7470A	434186
280-136273-5	PNMW-21	Total/NA	Water	7470A	434186
280-136273-6	PNMW-22	Total/NA	Water	7470A	434186

Metals (Continued)

Analysis Batch: 434483 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-7	PNMW-23	Total/NA	Water	7470A	434186
280-136273-8	PNMW-22-DUP	Total/NA	Water	7470A	434186
280-136273-9	PNMW-19-EB	Total/NA	Water	7470A	434186
MB 240-434186/1-A	Method Blank	Total/NA	Water	7470A	434186
LCS 240-434186/2-A	Lab Control Sample	Total/NA	Water	7470A	434186

Analysis Batch: 434652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total Recoverable	Water	6020A	434185
280-136273-2	PNMW-18	Total Recoverable	Water	6020A	434185
280-136273-3	PNMW-19	Total Recoverable	Water	6020A	434185
280-136273-4	PNMW-20	Total Recoverable	Water	6020A	434185
280-136273-5	PNMW-21	Total Recoverable	Water	6020A	434185
280-136273-6	PNMW-22	Total Recoverable	Water	6020A	434185
280-136273-7	PNMW-23	Total Recoverable	Water	6020A	434185
280-136273-8	PNMW-22-DUP	Total Recoverable	Water	6020A	434185
280-136273-9	PNMW-19-EB	Total Recoverable	Water	6020A	434185
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	6020A	434185
LCS 240-434185/3-A	Lab Control Sample	Total Recoverable	Water	6020A	434185
280-136273-1 MS	PNMW-17	Total Recoverable	Water	6020A	434185
280-136273-1 MSD	PNMW-17	Total Recoverable	Water	6020A	434185

Analysis Batch: 434985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total Recoverable	Water	6020A	434185
280-136273-2	PNMW-18	Total Recoverable	Water	6020A	434185
280-136273-3	PNMW-19	Total Recoverable	Water	6020A	434185
280-136273-4	PNMW-20	Total Recoverable	Water	6020A	434185
280-136273-5	PNMW-21	Total Recoverable	Water	6020A	434185
280-136273-6	PNMW-22	Total Recoverable	Water	6020A	434185
280-136273-7	PNMW-23	Total Recoverable	Water	6020A	434185
280-136273-8	PNMW-22-DUP	Total Recoverable	Water	6020A	434185
280-136273-9	PNMW-19-EB	Total Recoverable	Water	6020A	434185
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	6020A	434185
LCS 240-434185/3-A	Lab Control Sample	Total Recoverable	Water	6020A	434185
280-136273-1 MS	PNMW-17	Total Recoverable	Water	6020A	434185
280-136273-1 MSD	PNMW-17	Total Recoverable	Water	6020A	434185

General Chemistry

Analysis Batch: 494153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	9040B	
280-136273-2	PNMW-18	Total/NA	Water	9040B	
280-136273-3	PNMW-19	Total/NA	Water	9040B	
280-136273-4	PNMW-20	Total/NA	Water	9040B	
280-136273-5	PNMW-21	Total/NA	Water	9040B	
280-136273-6	PNMW-22	Total/NA	Water	9040B	
280-136273-7	PNMW-23	Total/NA	Water	9040B	
280-136273-8	PNMW-22-DUP	Total/NA	Water	9040B	
LCS 280-494153/4	Lab Control Sample	Total/NA	Water	9040B	

QC Association Summary

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

Job ID: 280-136273-1

General Chemistry

Analysis Batch: 494175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	SM 2540C	
280-136273-2	PNMW-18	Total/NA	Water	SM 2540C	
280-136273-3	PNMW-19	Total/NA	Water	SM 2540C	
280-136273-4	PNMW-20	Total/NA	Water	SM 2540C	
280-136273-5	PNMW-21	Total/NA	Water	SM 2540C	
280-136273-6	PNMW-22	Total/NA	Water	SM 2540C	
280-136273-7	PNMW-23	Total/NA	Water	SM 2540C	
280-136273-8	PNMW-22-DUP	Total/NA	Water	SM 2540C	
280-136273-9	PNMW-19-EB	Total/NA	Water	SM 2540C	
MB 280-494175/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-494175/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-494175/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-136273-1 DU	PNMW-17	Total/NA	Water	SM 2540C	

Analysis Batch: 494316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-9	PNMW-19-EB	Total/NA	Water	9040B	
LCS 280-494316/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 494333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	SM 2540D	
280-136273-2	PNMW-18	Total/NA	Water	SM 2540D	
280-136273-3	PNMW-19	Total/NA	Water	SM 2540D	
280-136273-4	PNMW-20	Total/NA	Water	SM 2540D	
280-136273-5	PNMW-21	Total/NA	Water	SM 2540D	
280-136273-6	PNMW-22	Total/NA	Water	SM 2540D	
280-136273-7	PNMW-23	Total/NA	Water	SM 2540D	
280-136273-8	PNMW-22-DUP	Total/NA	Water	SM 2540D	
280-136273-9	PNMW-19-EB	Total/NA	Water	SM 2540D	
MB 280-494333/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-494333/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-494333/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-136273-1 DU	PNMW-17	Total/NA	Water	SM 2540D	

Analysis Batch: 495713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	9056A	
280-136273-1	PNMW-17	Total/NA	Water	9056A	
280-136273-2	PNMW-18	Total/NA	Water	9056A	
280-136273-2	PNMW-18	Total/NA	Water	9056A	
280-136273-3	PNMW-19	Total/NA	Water	9056A	
280-136273-4	PNMW-20	Total/NA	Water	9056A	
280-136273-5	PNMW-21	Total/NA	Water	9056A	
280-136273-5	PNMW-21	Total/NA	Water	9056A	
280-136273-6	PNMW-22	Total/NA	Water	9056A	
280-136273-6	PNMW-22	Total/NA	Water	9056A	
280-136273-7	PNMW-23	Total/NA	Water	9056A	
280-136273-8	PNMW-22-DUP	Total/NA	Water	9056A	
280-136273-8	PNMW-22-DUP	Total/NA	Water	9056A	
280-136273-9	PNMW-19-EB	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 495713 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-495713/6	Method Blank	Total/NA	Water	9056A	
LCS 280-495713/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-495713/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-495713/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 495877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-2	PNMW-18	Total/NA	Water	9056A	
280-136273-4	PNMW-20	Total/NA	Water	9056A	
280-136273-4	PNMW-20	Total/NA	Water	9056A	
280-136273-7	PNMW-23	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: 470435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	PrecSep-21	
280-136273-2	PNMW-18	Total/NA	Water	PrecSep-21	
280-136273-3	PNMW-19	Total/NA	Water	PrecSep-21	
280-136273-4	PNMW-20	Total/NA	Water	PrecSep-21	
280-136273-5	PNMW-21	Total/NA	Water	PrecSep-21	
280-136273-6	PNMW-22	Total/NA	Water	PrecSep-21	
280-136273-7	PNMW-23	Total/NA	Water	PrecSep-21	
280-136273-8	PNMW-22-DUP	Total/NA	Water	PrecSep-21	
280-136273-9	PNMW-19-EB	Total/NA	Water	PrecSep-21	
MB 160-470435/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-470435/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-470435/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 470476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136273-1	PNMW-17	Total/NA	Water	PrecSep_0	
280-136273-2	PNMW-18	Total/NA	Water	PrecSep_0	
280-136273-3	PNMW-19	Total/NA	Water	PrecSep_0	
280-136273-4	PNMW-20	Total/NA	Water	PrecSep_0	
280-136273-5	PNMW-21	Total/NA	Water	PrecSep_0	
280-136273-6	PNMW-22	Total/NA	Water	PrecSep_0	
280-136273-7	PNMW-23	Total/NA	Water	PrecSep_0	
280-136273-8	PNMW-22-DUP	Total/NA	Water	PrecSep_0	
280-136273-9	PNMW-19-EB	Total/NA	Water	PrecSep_0	
MB 160-470476/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-470476/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-470476/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 280-136273-1

Client Sample ID: PNMW-17

Lab Sample ID: 280-136273-1
Date Collected: 05/04/20 21:10
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 00:38	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 21:44	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:24	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 15:45	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:00	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 19:49	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495713	05/21/20 20:05	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.14 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.14 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Client Sample ID: PNMW-18

Lab Sample ID: 280-136273-2
Date Collected: 05/05/20 12:30
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 00:52	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:14	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:36	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 15:52	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:05	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495877	05/22/20 20:20	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 20:54	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495713	05/21/20 21:11	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.52 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:50	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.52 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-136273-1

Client Sample ID: PNMW-19

Lab Sample ID: 280-136273-3

Date Collected: 05/06/20 13:00
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 00:56	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:18	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:38	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 15:54	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:08	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 21:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.26 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.26 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Client Sample ID: PNMW-20

Lab Sample ID: 280-136273-4

Date Collected: 05/04/20 16:30
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:01	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:30	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:46	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 15:56	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:15	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495877	05/22/20 21:13	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	495877	05/22/20 21:30	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 22:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.78 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.78 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-136273-1

Client Sample ID: PNMW-21

Date Collected: 05/04/20 13:05
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-5

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:14	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:35	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:48	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 15:58	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:19	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 22:33	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495713	05/21/20 22:49	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.09 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.09 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Client Sample ID: PNMW-22

Date Collected: 05/05/20 17:15
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-6

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:19	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:39	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:51	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 16:04	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:34	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/21/20 23:06	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495713	05/21/20 23:22	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			1000.96 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			1000.96 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471626	06/01/20 13:58	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-136273-1

Client Sample ID: PNMW-23

Lab Sample ID: 280-136273-7

Date Collected: 05/05/20 14:30
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:23	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:43	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:53	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 16:06	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:38	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	495877	05/22/20 21:48	JAP	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/22/20 00:11	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.76 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.76 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471628	06/01/20 14:02	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Client Sample ID: PNMW-22-DUP

Lab Sample ID: 280-136273-8

Date Collected: 05/05/20 17:15
Matrix: Water
Date Received: 05/07/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:28	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:47	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:56	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 16:08	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 21:43	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/22/20 00:44	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495713	05/22/20 01:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.25 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472436	06/05/20 05:51	KLS	TAL SL
Total/NA	Prep	PrecSep_0			999.25 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471628	06/01/20 14:02	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-136273-1

Client Sample ID: PNMW-19-EB

Date Collected: 05/06/20 10:00
Date Received: 05/07/20 15:10

Lab Sample ID: 280-136273-9

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:32	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434652	05/15/20 22:52	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 21:58	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	434186	05/13/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			434483	05/14/20 16:10	SLD	TAL CAN
Total/NA	Analysis	9040B		1			494316	05/08/20 22:06	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	495713	05/22/20 01:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	494333	05/11/20 10:01	FRG	TAL DEN
Total/NA	Prep	PrecSep-21			999.43 mL	1.0 g	470435	05/14/20 12:45	MNH	TAL SL
Total/NA	Analysis	9315		1			472441	06/05/20 06:20	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			999.43 mL	1.0 g	470476	05/14/20 13:17	MNH	TAL SL
Total/NA	Analysis	9320		1			471628	06/01/20 14:02	CJQ	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			472543	06/05/20 09:33	SMP	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-136273-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-136273-1

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

~~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: Rainsberger	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 208 841 9707	E-Mail: darlene.bandy@testamericainc.com		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: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
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:

AWRP / BASP

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 - TDS	2540D - TSS	6010C, 6020A, 7470A - Total Metals (App III + IV)	9040B - pH	9056A - Anions (Chloride / Fluoride / Sulfate)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC - Ra226 / Ra228 Combined	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N	N	D		
PNMW-17	5.4.20	2110	G	W			X	X	X	X	X	X		*Sub metals to Canton / Radchem to St. Louis
PNMW-18	5.5.20	1230	G	W			X	X	X	X	X	X		
PNMW-19	5.6.20	1300	G	W			X	X	X	X	X	X		
PNMW-20	5.4.20	1630	G	W			X	X	X	X	X	X		
PNMW-21	5.4.20	1305	G	W			X	X	X	X	X	X		
PNMW-22	5.5.20	1715	G	W			X	X	X	X	X	X		
PNMW-23	5.5.20	1430	G	W			X	X	X	X	X	X		
PNMW-22-DUP	5.5.20	1715	G	W			X	X	X	X	X	X		
PNMW-19-EB	5.6.20	1000	G	W			X	X	X	X	X	X		← EB: samples in ELF cooler

280-136273 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
Kaitlin Rainsberger	5.6.20 // 1510	HDR	[illegible]	05/06/2020 1510	ETA-DEN

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: -0.1, 5.4 °C IR8 +0.6 JL 5-7-20

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 America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-523741.1
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 #: 280-136273-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/5/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-17 (280-136273-1)	5/4/20	21:10 Mountain		Water			X	X	X	2	
PNMW-18 (280-136273-2)	5/5/20	12:30 Mountain		Water			X	X	X	2	
PNMW-19 (280-136273-3)	5/6/20	13:00 Mountain		Water			X	X	X	2	
PNMW-20 (280-136273-4)	5/4/20	16:30 Mountain		Water			X	X	X	2	
PNMW-21 (280-136273-5)	5/4/20	13:05 Mountain		Water			X	X	X	2	
PNMW-22 (280-136273-6)	5/5/20	17:15 Mountain		Water			X	X	X	2	
PNMW-23 (280-136273-7)	5/5/20	14:30 Mountain		Water			X	X	X	2	
PNMW-22-DUP (280-136273-8)	5/5/20	17:15 Mountain		Water			X	X	X	2	
PNMW-19-EB (280-136273-9)	5/6/20	10:00 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: 5/8/2020 1150	Company	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: Michakovinhinger	Date/Time: 5/9/2020 09:00	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

91.0/11.7

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-523740.1
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 #: 280-136273-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/28/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	7470A/7470A_Prep Mercury - 2/2	Total Number of containers	Special Instructions/Note:
				Preservation Code:							SB
PNMW-17 (280-136273-1)	5/4/20	21:10 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-18 (280-136273-2)	5/5/20	12:30 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-19 (280-136273-3)	5/6/20	13:00 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-20 (280-136273-4)	5/4/20	16:30 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-21 (280-136273-5)	5/4/20	13:05 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-22 (280-136273-6)	5/5/20	17:15 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-23 (280-136273-7)	5/5/20	14:30 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-22-DUP (280-136273-8)	5/5/20	17:15 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-19-EB (280-136273-9)	5/6/20	10:00 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
[signature]	5/8/20 1145		[signature]	5-9-20 1020	FTAC
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 EPA Denver Site Name_____ Cooler unpacked by:
Cooler Received on 5-9-20 Opened on 5-9-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other_____

Receipt After-hours: Drop-off Date/Time_____ Storage Location_____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other_____
Packing material used: Bubble Wrap Foam Plastic Bag None Other_____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF **+0.7** °C) Observed Cooler Temp 12.1 °C Corrected Cooler Temp 12.8 °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 2 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 # : _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-10 IR-11	11.0	11.7	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11	12.1	12.8	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
☐ See Temperature Excursion Form				

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-136273-1

Login Number: 136273
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	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.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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: 280-136273-1

Login Number: 136273
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/11/20 06:50 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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-136273-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-136273-1	PNMW-17	67.8
280-136273-2	PNMW-18	69.9
280-136273-3	PNMW-19	73.5
280-136273-4	PNMW-20	76.2
280-136273-5	PNMW-21	78.3
280-136273-6	PNMW-22	80.7
280-136273-7	PNMW-23	84.6
280-136273-8	PNMW-22-DUP	67.8
280-136273-9	PNMW-19-EB	83.7
LCS 160-470435/1-A	Lab Control Sample	72.3
LCSD 160-470435/2-A	Lab Control Sample Dup	77.7
MB 160-470435/23-A	Method Blank	89.8

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-136273-1	PNMW-17	67.8	81.9
280-136273-2	PNMW-18	69.9	84.1
280-136273-3	PNMW-19	73.5	79.3
280-136273-4	PNMW-20	76.2	70.7
280-136273-5	PNMW-21	78.3	83.4
280-136273-6	PNMW-22	80.7	81.9
280-136273-7	PNMW-23	84.6	81.5
280-136273-8	PNMW-22-DUP	67.8	82.6
280-136273-9	PNMW-19-EB	83.7	86.7
LCS 160-470476/1-A	Lab Control Sample	72.3	76.3
LCSD 160-470476/2-A	Lab Control Sample Dup	77.7	83.0
MB 160-470476/23-A	Method Blank	89.8	85.2

Percent Yield (Acceptance Limits)

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: 280-136275-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
5/28/2020 1:01:46 AM

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

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-136275-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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.

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: 280-136275-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-136275-1

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

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

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

RECEIPT
The samples were received on 5/6/2020 3:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

Receipt Exceptions
The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): PNMW-17 (280-136275-1), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4). The container labels do not list the sample time on any containers.

TOTAL RECOVERABLE METALS
Samples PNMW-17 (280-136275-1), PNMW-21 (280-136275-2), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/13/2020 and analyzed on 05/15/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-17 (280-136275-1), PNMW-21 (280-136275-2), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/13/2020 and analyzed on 05/19/2020.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-17 (280-136275-1), PNMW-21 (280-136275-2), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/08/2020.

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

CORROSIVITY (PH)
Samples PNMW-17 (280-136275-1), PNMW-21 (280-136275-2), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/07/2020.

Job ID: 280-136275-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

The parent sample did not equilibrate but the sample duplicate performed on this sample did equilibrate and the RPD was within the limits: PNMW-17 (280-136275-1).

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

ANIONS (28 DAYS)
Samples PNMW-17 (280-136275-1), PNMW-21 (280-136275-2), PNMW-22 (280-136275-3) and PNMW-23 (280-136275-4) 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 PNMW-17 (280-136275-1)[5X], PNMW-21 (280-136275-2)[5X], PNMW-22 (280-136275-3)[5X], PNMW-23 (280-136275-4)[10X] and PNMW-23 (280-136275-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

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

Job ID: 280-136275-1

Client Sample ID: PNMW-17 — Lab Sample ID: 280-136275-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.16		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	250		1.0	0.58	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	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	300		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	510		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-21 — Lab Sample ID: 280-136275-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.16		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	190		1.0	0.58	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	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	280		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	610		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-22 — Lab Sample ID: 280-136275-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.15		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	310		1.0	0.58	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	920		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-23 — Lab Sample ID: 280-136275-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	300		1.0	0.58	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	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	1300		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2200		20	9.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-136275-1

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
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN

Protocol References:

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

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

Laboratory References:

TAL 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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-136275-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-136275-1	PNMW-17	Water	05/04/20 21:10	05/06/20 15:10	
280-136275-2	PNMW-21	Water	05/04/20 13:05	05/06/20 15:10	
280-136275-3	PNMW-22	Water	05/05/20 17:15	05/06/20 15:10	
280-136275-4	PNMW-23	Water	05/05/20 14:30	05/06/20 15:10	

Client Sample Results

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

Job ID: 280-136275-1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136275-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.16		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 01:55	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136275-2**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.16		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 02:08	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136275-3**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.15		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 02:13	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136275-4**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		05/13/20 14:00	05/15/20 02:17	1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-136275-1**
Date Collected: 05/04/20 21:10 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	250		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 22:01	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-136275-2**
Date Collected: 05/04/20 13:05 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	190		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 22:03	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-136275-3**
Date Collected: 05/05/20 17:15 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 22:06	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-136275-4**
Date Collected: 05/05/20 14:30 — **Matrix: Water**
Date Received: 05/06/20 15:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	300		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 22:08	1

Client Sample Results

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

Job ID: 280-136275-1

General Chemistry

Client Sample ID: PNMW-17
Date Collected: 05/04/20 21:10
Date Received: 05/06/20 15:10

Lab Sample ID: 280-136275-1
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			05/07/20 20:40	1
Temperature	21.2	HF	1.0	1.0	Degrees C			05/07/20 20:40	1
Chloride	300		15	5.1	mg/L			05/21/20 15:07	5
Fluoride	ND		2.5	0.83	mg/L			05/21/20 15:07	5
Sulfate	510		25	5.2	mg/L			05/21/20 15:07	5
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L			05/08/20 10:34	1

Client Sample ID: PNMW-21
Date Collected: 05/04/20 13:05
Date Received: 05/06/20 15:10

Lab Sample ID: 280-136275-2
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			05/07/20 20:49	1
Temperature	20.1	HF	1.0	1.0	Degrees C			05/07/20 20:49	1
Chloride	280		15	5.1	mg/L			05/21/20 15:56	5
Fluoride	ND		2.5	0.83	mg/L			05/21/20 15:56	5
Sulfate	610		25	5.2	mg/L			05/21/20 15:56	5
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			05/08/20 10:34	1

Client Sample ID: PNMW-22
Date Collected: 05/05/20 17:15
Date Received: 05/06/20 15:10

Lab Sample ID: 280-136275-3
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			05/07/20 20:53	1
Temperature	19.8	HF	1.0	1.0	Degrees C			05/07/20 20:53	1
Chloride	250		15	5.1	mg/L			05/21/20 16:13	5
Fluoride	ND		2.5	0.83	mg/L			05/21/20 16:13	5
Sulfate	920		25	5.2	mg/L			05/21/20 16:13	5
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L			05/08/20 10:34	1

Client Sample ID: PNMW-23
Date Collected: 05/05/20 14:30
Date Received: 05/06/20 15:10

Lab Sample ID: 280-136275-4
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			05/07/20 20:56	1
Temperature	20.1	HF	1.0	1.0	Degrees C			05/07/20 20:56	1
Chloride	110		15	5.1	mg/L			05/21/20 16:29	5
Fluoride	ND		2.5	0.83	mg/L			05/21/20 16:29	5
Sulfate	1300		50	10	mg/L			05/22/20 20:03	10
Total Dissolved Solids (TDS)	2200		20	9.4	mg/L			05/08/20 10:34	1

QC Sample Results

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

Job ID: 280-136275-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-434185/1-A
Matrix: Water
Analysis Batch: 434478

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		05/13/20 14:00	05/14/20 23:58	1

Lab Sample ID: LCS 240-434185/2-A
Matrix: Water
Analysis Batch: 434478

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.08		mg/L		108	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-434185/1-A
Matrix: Water
Analysis Batch: 434985

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.58	mg/L		05/13/20 14:00	05/19/20 21:19	1

Lab Sample ID: LCS 240-434185/3-A
Matrix: Water
Analysis Batch: 434985

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 434185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25.0	25.5		mg/L		102	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-494153/4
Matrix: Water
Analysis Batch: 494153

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: 280-136275-1 DU
Matrix: Water
Analysis Batch: 494153

Client Sample ID: PNMW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.2	HF	7.5		SU		3	5
Temperature	21.2	HF	20.1		Degrees C		5	10

Method: 9056A - Anions, Ion Chromatography

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

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

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
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

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: 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

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

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

Lab Sample ID: MRL 280-495877/3
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 495877

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 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 280-494175/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 494175

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/08/20 10:34	1

Lab Sample ID: LCS 280-494175/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 494175

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids (TDS)			501	465		mg/L		93	93 - 110		

Lab Sample ID: LCSD 280-494175/3
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 494175

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			501	470		mg/L		94	93 - 110	1	20

QC Association Summary

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

Job ID: 280-136275-1

Metals

Prep Batch: 434185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total Recoverable	Water	3005A	
280-136275-2	PNMW-21	Total Recoverable	Water	3005A	
280-136275-3	PNMW-22	Total Recoverable	Water	3005A	
280-136275-4	PNMW-23	Total Recoverable	Water	3005A	
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-434185/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-434185/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 434478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total Recoverable	Water	6010C	434185
280-136275-2	PNMW-21	Total Recoverable	Water	6010C	434185
280-136275-3	PNMW-22	Total Recoverable	Water	6010C	434185
280-136275-4	PNMW-23	Total Recoverable	Water	6010C	434185
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	6010C	434185
LCS 240-434185/2-A	Lab Control Sample	Total Recoverable	Water	6010C	434185

Analysis Batch: 434985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total Recoverable	Water	6020A	434185
280-136275-2	PNMW-21	Total Recoverable	Water	6020A	434185
280-136275-3	PNMW-22	Total Recoverable	Water	6020A	434185
280-136275-4	PNMW-23	Total Recoverable	Water	6020A	434185
MB 240-434185/1-A	Method Blank	Total Recoverable	Water	6020A	434185
LCS 240-434185/3-A	Lab Control Sample	Total Recoverable	Water	6020A	434185

General Chemistry

Analysis Batch: 494153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total/NA	Water	9040B	
280-136275-2	PNMW-21	Total/NA	Water	9040B	
280-136275-3	PNMW-22	Total/NA	Water	9040B	
280-136275-4	PNMW-23	Total/NA	Water	9040B	
LCS 280-494153/4	Lab Control Sample	Total/NA	Water	9040B	
280-136275-1 DU	PNMW-17	Total/NA	Water	9040B	

Analysis Batch: 494175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total/NA	Water	SM 2540C	
280-136275-2	PNMW-21	Total/NA	Water	SM 2540C	
280-136275-3	PNMW-22	Total/NA	Water	SM 2540C	
280-136275-4	PNMW-23	Total/NA	Water	SM 2540C	
MB 280-494175/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-494175/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-494175/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 495711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-1	PNMW-17	Total/NA	Water	9056A	
280-136275-2	PNMW-21	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 495711 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-3	PNMW-22	Total/NA	Water	9056A	
280-136275-4	PNMW-23	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	

Analysis Batch: 495877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-136275-4	PNMW-23	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	

Lab Chronicle

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

Job ID: 280-136275-1

Client Sample ID: PNMW-17

Lab Sample ID: 280-136275-1
Date Collected: 05/04/20 21:10
Matrix: Water
Date Received: 05/06/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 01:55	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 22:01	DSH	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 20:40	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495711	05/21/20 15:07	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN

Client Sample ID: PNMW-21

Lab Sample ID: 280-136275-2
Date Collected: 05/04/20 13:05
Matrix: Water
Date Received: 05/06/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 02:08	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 22:03	DSH	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 20:49	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495711	05/21/20 15:56	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN

Client Sample ID: PNMW-22

Lab Sample ID: 280-136275-3
Date Collected: 05/05/20 17:15
Matrix: Water
Date Received: 05/06/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 02:13	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 22:06	DSH	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 20:53	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495711	05/21/20 16:13	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	TAL DEN

Client Sample ID: PNMW-23

Lab Sample ID: 280-136275-4
Date Collected: 05/05/20 14:30
Matrix: Water
Date Received: 05/06/20 15:10

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	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			434478	05/15/20 02:17	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	434185	05/13/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			434985	05/19/20 22:08	DSH	TAL CAN
Total/NA	Analysis	9040B		1			494153	05/07/20 20:56	CJ	TAL DEN

Lab Chronicle

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

Job ID: 280-136275-1

Client Sample ID: PNMW-23

Date Collected: 05/05/20 14:30
Date Received: 05/06/20 15:10

Lab Sample ID: 280-136275-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	5 mL	5 mL	495877	05/22/20 20:03	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	495711	05/21/20 16:29	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	494175	05/08/20 10:34	ILC	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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-136275-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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

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: Rainsberger	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone: 208 841 9707	E-Mail: darlene.bandy@testamericainc.com		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: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

Analysis Requested

East Land fill (ELF)
* cooler contains one AWRP/BASP sample

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 - TDS	2540D - TSS	6010C, 6020A, 7470A - Total Metals (Ba, B, Ca)	9040B - pH	9056A - Anions (Chloride / Fluoride / Sulfate)	9315-Ra226, 9320-Ra228, Ra226+Ra228 Combined, GFPC - Ra226 / Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N	N	D		
PNMW-17	5.4.20	2110	G	W			X		X	X	X			*Sub metals to Canton / Radchem to St. Louis
PNMW-21	5.4.20	1305	G	W			X		X	X	X			
PNMW-22	5.5.20	1715	G	W			X		X	X	X			
PNMW-23	5.5.20	1430	G	W			X		X	X	X			
DUP & EB on sep. COC														

280-136275 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:

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:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Kaitlin Rainsberger	5.6.20 // 1510		[signature]	05/06/2020 1510	ETADEN

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 1.1°C IR8 +0.6 JL 5-7-20

Ver: 01/16/2019

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

12.1/124

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-523738.1
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 #: 280-136275-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 5/27/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

5/3

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)	6010C/3005A Boron	6020A/3005A Calcium	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-17 (280-136275-1)	5/4/20	21:10 Mountain		Water			X	X	1	
PNMW-21 (280-136275-2)	5/4/20	13:05 Mountain		Water			X	X	1	
PNMW-22 (280-136275-3)	5/5/20	17:15 Mountain		Water			X	X	1	
PNMW-23 (280-136275-4)	5/5/20	14:30 Mountain		Water			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
[signature]	5/8/2020 1100		[signature]	5-9-20 1020	EMT

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: 280-136275-1

Login Number: 136275
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	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.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-139119-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Darlene Bandy

Authorized for release by:
9/4/2020 2:12:39 PM

Darlene Bandy, Project Manager I
(303)736-0188
Darlene.Bandy@Eurofinset.com

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.

Table of Contents

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.
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

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

Glossary

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

Job ID: 280-139119-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-139119-1

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 7/31/2020 3:30 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.1º C, 1.8º C and 4.9º C.

Receipt Exceptions

The container labels for the following sample did not match the information listed on the Chain-of-Custody (COC): DUP (280-139119-10). The container labels list the sample ID as "DUP-1", while the COC lists "DUP". The sample was logged per the ID listed on the COC.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-13 (280-139119-3), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/07/2020 and analyzed on 08/10/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-13 (280-139119-3), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 08/07/2020 and analyzed on 08/10/2020.

Lithium was detected in method blank MB 240-446125/1-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
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-13 (280-139119-3), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for total mercury in accordance with EPA SW-846 Methods

Job ID: 280-139119-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

7470A. The samples were prepared and analyzed on 08/07/2020.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 08/04/2020 and 08/05/2020.

Total Dissolved Solids (TDS) was detected in method blank MB 280-504504/1 at a level exceeding the reporting limit. 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. Associated sample(s) were not re-extracted and/or re-analyzed because results were 10X greater than the value found in the method blank. The following sample is associated: PNMW-16 (280-139119-6).

Total Dissolved Solids (TDS) exceeded the RPD limit for the duplicate of sample PNMW-19DU (280-139119-5). Refer to the QC report for details. Sample non-homogeneity is suspected.

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

TOTAL SUSPENDED SOLIDS
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/03/2020.

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

CORROSIVITY (PH)
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-13 (280-139119-3), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 08/03/2020, 08/05/2020 and 08/06/2020.

The parent sample did not equilibrate to 0.05 pH for the following sample: PNMW-13 (280-139119-3). The DUP did equilibrated, the RPD was within the limits.

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

ANIONS (28 DAYS)
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-13 (280-139119-3), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 08/11/2020 and 08/12/2020.

Samples PNMW-1B (280-139119-1)[5X], PNMW-16 (280-139119-6)[10X], P6 (280-139119-7)[5X], P7 (280-139119-8)[20X], P7 (280-139119-8)[5X], PNMW-20 (280-139119-11)[10X], PNMW-20 (280-139119-11)[50X], PNMW-18 (280-139119-12)[10X] and PNMW-18 (280-139119-12)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on

Job ID: 280-139119-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

08/06/2020 and analyzed on 08/30/2020 and 09/02/2020.

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

The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: PNMW-14 (280-139119-4), PNMW-16 (280-139119-6), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12).

Insufficient sample volume was available to perform a sample duplicate for the following samples: PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-19 (280-139119-5), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9) and DUP (280-139119-10). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

RADIUM-228

Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/06/2020 and analyzed on 08/24/2020.

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

The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: PNMW-14 (280-139119-4), PNMW-16 (280-139119-6), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12).

The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences: PNMW-20 (280-139119-11). The data have been reported with this narrative.

Radium-228 was detected in method blank MB 160-478843/16-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.

Insufficient sample volume was available to perform a sample duplicate for the following samples: PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-19 (280-139119-5), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9) and DUP (280-139119-10). 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)

Samples PNMW-1B (280-139119-1), PNMW-2B (280-139119-2), PNMW-14 (280-139119-4), PNMW-19 (280-139119-5), PNMW-16 (280-139119-6), P6 (280-139119-7), P7 (280-139119-8), P18B (280-139119-9), DUP (280-139119-10), PNMW-20 (280-139119-11) and PNMW-18 (280-139119-12) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 09/03/2020.

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

Detection Summary

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

Job ID: 280-139119-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-139119-1

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	0.027		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	110		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	0.0034	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.015		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00028	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Lithium	0.089	B	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	19.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	36		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.84		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	320		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	950		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2B — Lab Sample ID: 280-139119-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.045	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.13		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	68		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0013	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0029	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0024	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	7.7	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	11		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.70		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	21		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	400		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-13 — Lab Sample ID: 280-139119-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.23		0.10	0.023	mg/L	1		6010C	Total Recoverable
Antimony	0.00097	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-139119-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.011		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.33		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.0022		0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	78		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00033	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.016		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.079		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0076	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.028		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0048	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00054	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Lithium	0.10	B	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	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	4.6		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	41		5.0	1.0	mg/L	1		9056A	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-139119-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.058	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.00079	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.090		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	39		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	0.0027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0048	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0022	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.036	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	19.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.0	J	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	25		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	260		10	4.7	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-139119-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	17		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-19 — Lab Sample ID: 280-139119-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.22		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	65		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00032	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	0.0015	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00050	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0022	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.026	B	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	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	31		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	47		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	370		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	7.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-139119-6

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	0.0011	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	220		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0029		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0022		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0012	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00077	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.16	B	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	19.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.8	J	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	1000		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1900	B	20	9.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-16 (Continued) — Lab Sample ID: 280-139119-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	54		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: P6 — Lab Sample ID: 280-139119-7

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
Arsenic	0.0010	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.031		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	100		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0012		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0040	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.033	B	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	19.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	94		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.79		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	350		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	900		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: P7 — Lab Sample ID: 280-139119-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		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	0.046		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	750		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00045	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.011		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	0.0052		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.048	B	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	19.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	490		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.25	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1800		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	6200		2000	940	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-139119-1

Client Sample ID: P18B — Lab Sample ID: 280-139119-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.026	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.041		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	100		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0026		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	0.0020	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.026	B	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	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	52		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	150		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	550		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: DUP — Lab Sample ID: 280-139119-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.046	J	0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.14		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	71		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0030	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0022	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	7.7	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	11		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.72		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	22		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	410		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-20 — Lab Sample ID: 280-139119-11

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	0.0025	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.057		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Client Sample ID: PNMW-20 (Continued) — Lab Sample ID: 280-139119-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.00032	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	440		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00051	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.0024		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0082		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Lead	0.0063		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0086		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.081	B	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	21.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1300		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.18	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4400		250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		2000	940	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	320		10	2.8	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-18 — Lab Sample ID: 280-139119-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.19		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	0.068		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	310		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00073	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0032		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Lead	0.0010		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0028	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.041	B	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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	440		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.31	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1100		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2800		2000	940	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	45		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-139119-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-139119-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-139119-1	PNMW-1B	Water	07/28/20 10:25	07/31/20 15:30	
280-139119-2	PNMW-2B	Water	07/28/20 12:00	07/31/20 15:30	
280-139119-3	PNMW-13	Water	07/30/20 15:25	07/31/20 15:30	
280-139119-4	PNMW-14	Water	07/28/20 15:00	07/31/20 15:30	
280-139119-5	PNMW-19	Water	07/29/20 15:15	07/31/20 15:30	
280-139119-6	PNMW-16	Water	07/29/20 12:15	07/31/20 15:30	
280-139119-7	P6	Water	07/31/20 09:20	07/31/20 15:30	
280-139119-8	P7	Water	07/30/20 15:40	07/31/20 15:30	
280-139119-9	P18B	Water	07/31/20 10:55	07/31/20 15:30	
280-139119-10	DUP	Water	07/28/20 12:10	07/31/20 15:30	
280-139119-11	PNMW-20	Water	07/30/20 12:05	07/31/20 15:30	
280-139119-12	PNMW-18	Water	07/31/20 13:25	07/31/20 15:30	

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

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 11:09	1

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.045	J	0.10	0.023	mg/L		08/07/20 14:00	08/10/20 11:13	1

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139119-3**
Date Collected: 07/30/20 15:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.23		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 13:34	1

Client Sample ID: PNMW-14 — **Lab Sample ID: 280-139119-4**
Date Collected: 07/28/20 15:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.058	J	0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:04	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-139119-5**
Date Collected: 07/29/20 15:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:08	1

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-139119-6**
Date Collected: 07/29/20 12:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:13	1

Client Sample ID: P6 — **Lab Sample ID: 280-139119-7**
Date Collected: 07/31/20 09:20 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:17	1

Client Sample ID: P7 — **Lab Sample ID: 280-139119-8**
Date Collected: 07/30/20 15:40 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:21	1

Client Sample ID: P18B — **Lab Sample ID: 280-139119-9**
Date Collected: 07/31/20 10:55 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.026	J	0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:25	1

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

Client Sample ID: DUP — **Lab Sample ID: 280-139119-10**
Date Collected: 07/28/20 12:10 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.046**	**J**	0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:30	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-139119-11**
Date Collected: 07/30/20 12:05 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.9**		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:34	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-139119-12**
Date Collected: 07/31/20 13:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.19**		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 14:38	1

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

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:07	1
Arsenic	ND		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:07	1
Barium	**0.027**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:07	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:07	1
Calcium	**110**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:07	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:07	1
Cobalt	ND		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:07	1
Chromium	**0.0019**	**J**	0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:07	1
Molybdenum	**0.0034**	**J**	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:07	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:07	1
Selenium	**0.015**		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:07	1
Thallium	**0.00028**	**J**	0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:07	1
Lithium	**0.089**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:07	1

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:10	1
Arsenic	ND		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:10	1
Barium	**0.13**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:10	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:10	1
Calcium	**68**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:10	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:10	1
Cobalt	ND		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:10	1
Chromium	**0.0013**	**J**	0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:10	1
Molybdenum	**0.0029**	**J**	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:10	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:10	1
Selenium	**0.0024**	**J**	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:10	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:10	1
Lithium	**0.038**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:10	1

Client Sample Results

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

Job ID: 280-139119-1

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

Client Sample ID: PNMW-13
Date Collected: 07/30/20 15:25
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00097	J	0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:12	1
Arsenic	0.011		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:12	1
Barium	0.33		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:12	1
Beryllium	0.0022		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:12	1
Calcium	78		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:12	1
Cadmium	0.00033	J	0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:12	1
Cobalt	0.016		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:12	1
Chromium	0.079		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:12	1
Molybdenum	0.0076	J	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:12	1
Lead	0.028		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:12	1
Selenium	0.0048	J	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:12	1
Thallium	0.00054	J	0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:12	1
Lithium	0.10	B	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:12	1

Client Sample ID: PNMW-14
Date Collected: 07/28/20 15:00
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:15	1
Arsenic	0.00079	J	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:15	1
Barium	0.090		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:15	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:15	1
Calcium	39		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:15	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:15	1
Cobalt	0.00020	J	0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:15	1
Chromium	0.0027		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:15	1
Molybdenum	0.0048	J	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:15	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:15	1
Selenium	0.0022	J	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:15	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:15	1
Lithium	0.036	B	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:15	1

Client Sample ID: PNMW-19
Date Collected: 07/29/20 15:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:17	1
Arsenic	ND		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:17	1
Barium	0.22		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:17	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:17	1
Calcium	65		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:17	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:17	1
Cobalt	0.00032	J	0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:17	1
Chromium	0.0024		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:17	1
Molybdenum	0.0015	J	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:17	1
Lead	0.00050	J	0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:17	1
Selenium	0.0022	J	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:17	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:17	1
Lithium	0.026	B	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:17	1

Client Sample Results

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

Job ID: 280-139119-1

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

Client Sample ID: PNMW-16
Date Collected: 07/29/20 12:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:20	1
Arsenic	**0.0011**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:20	1
Barium	**0.021**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:20	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:20	1
Calcium	**220**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:20	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:20	1
Cobalt	**0.0029**		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:20	1
Chromium	**0.0022**		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:20	1
Molybdenum	**0.0012**	**J**	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:20	1
Lead	**0.00077**	**J**	0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:20	1
Selenium	ND		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:20	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:20	1
Lithium	**0.16**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:20	1

Client Sample ID: P6
Date Collected: 07/31/20 09:20
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:22	1
Arsenic	**0.0010**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:22	1
Barium	**0.031**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:22	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:22	1
Calcium	**100**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:22	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:22	1
Cobalt	**0.0012**		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:22	1
Chromium	ND		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:22	1
Molybdenum	**0.0040**	**J**	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:22	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:22	1
Selenium	ND		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:22	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:22	1
Lithium	**0.033**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:22	1

Client Sample ID: P7
Date Collected: 07/30/20 15:40
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:29	1
Arsenic	**0.0017**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:29	1
Barium	**0.046**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:29	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:29	1
Calcium	**750**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:29	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:29	1
Cobalt	**0.00045**	**J**	0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:29	1
Chromium	**0.011**		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:29	1
Molybdenum	ND		0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:29	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:29	1
Selenium	**0.0052**		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:29	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:29	1
Lithium	**0.048**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:29	1

Client Sample Results

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

Job ID: 280-139119-1

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

Client Sample ID: P18B
Date Collected: 07/31/20 10:55
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:32	1
Arsenic	**0.0015**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:32	1
Barium	**0.041**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:32	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:32	1
Calcium	**100**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:32	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:32	1
Cobalt	ND		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:32	1
Chromium	**0.0026**		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:32	1
Molybdenum	ND		0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:32	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:32	1
Selenium	**0.0020**	**J**	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:32	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:32	1
Lithium	**0.026**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:32	1

Client Sample ID: DUP
Date Collected: 07/28/20 12:10
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:34	1
Arsenic	ND		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:34	1
Barium	**0.14**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:34	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:34	1
Calcium	**71**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:34	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:34	1
Cobalt	ND		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:34	1
Chromium	**0.0015**	**J**	0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:34	1
Molybdenum	**0.0030**	**J**	0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:34	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:34	1
Selenium	**0.0022**	**J**	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:34	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:34	1
Lithium	**0.038**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:34	1

Client Sample ID: PNMW-20
Date Collected: 07/30/20 12:05
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:37	1
Arsenic	**0.0025**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:37	1
Barium	**0.057**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:37	1
Beryllium	**0.00032**	**J**	0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:37	1
Calcium	**440**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:37	1
Cadmium	**0.00051**	**J**	0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:37	1
Cobalt	**0.0024**		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:37	1
Chromium	**0.0082**		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:37	1
Molybdenum	ND		0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:37	1
Lead	**0.0063**		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:37	1
Selenium	**0.0086**		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:37	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:37	1
Lithium	**0.081**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:37	1

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

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-139119-12**
Date Collected: 07/31/20 13:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 13:39	1
Arsenic	**0.0011**	**J**	0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 13:39	1
Barium	**0.068**		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 13:39	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 13:39	1
Calcium	**310**		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 13:39	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:39	1
Cobalt	**0.00073**	**J**	0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 13:39	1
Chromium	**0.0032**		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 13:39	1
Molybdenum	ND		0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 13:39	1
Lead	**0.0010**		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 13:39	1
Selenium	**0.0028**	**J**	0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 13:39	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 13:39	1
Lithium	**0.041**	**B**	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 13:39	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:47	1

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:49	1

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139119-3**
Date Collected: 07/30/20 15:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:51	1

Client Sample ID: PNMW-14 — **Lab Sample ID: 280-139119-4**
Date Collected: 07/28/20 15:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:54	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-139119-5**
Date Collected: 07/29/20 15:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:56	1

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-139119-6**
Date Collected: 07/29/20 12:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:03	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: P6 — **Lab Sample ID: 280-139119-7**
Date Collected: 07/31/20 09:20 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:05	1

Client Sample ID: P7 — **Lab Sample ID: 280-139119-8**
Date Collected: 07/30/20 15:40 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:07	1

Client Sample ID: P18B — **Lab Sample ID: 280-139119-9**
Date Collected: 07/31/20 10:55 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:09	1

Client Sample ID: DUP — **Lab Sample ID: 280-139119-10**
Date Collected: 07/28/20 12:10 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:11	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-139119-11**
Date Collected: 07/30/20 12:05 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:14	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-139119-12**
Date Collected: 07/31/20 13:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 15:16	1

General Chemistry

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:21	1
Temperature	19.1	HF	1.0	1.0	Degrees C			08/03/20 19:21	1
Chloride	36		3.0	1.0	mg/L			08/11/20 14:40	1
Fluoride	0.84		0.50	0.17	mg/L			08/11/20 14:40	1
Sulfate	320		25	5.2	mg/L			08/11/20 14:56	5
Total Dissolved Solids (TDS)	950		10	4.7	mg/L			08/04/20 10:34	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:24	1

General Chemistry (Continued)

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	19.2	HF	1.0	1.0	Degrees C			08/03/20 19:24	1
Chloride	11		3.0	1.0	mg/L			08/11/20 15:12	1
Fluoride	0.70		0.50	0.17	mg/L			08/11/20 15:12	1
Sulfate	21		5.0	1.0	mg/L			08/11/20 15:12	1
Total Dissolved Solids (TDS)	400		10	4.7	mg/L			08/04/20 10:34	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139119-3**
Date Collected: 07/30/20 15:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/06/20 18:46	1
Temperature	23.5	HF	1.0	1.0	Degrees C			08/06/20 18:46	1
Chloride	4.6		3.0	1.0	mg/L			08/11/20 15:45	1
Fluoride	1.2		0.50	0.17	mg/L			08/11/20 15:45	1
Sulfate	41		5.0	1.0	mg/L			08/11/20 15:45	1

Client Sample ID: PNMW-14 — **Lab Sample ID: 280-139119-4**
Date Collected: 07/28/20 15:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:28	1
Temperature	19.5	HF	1.0	1.0	Degrees C			08/03/20 19:28	1
Chloride	2.0	J	3.0	1.0	mg/L			08/11/20 16:18	1
Fluoride	1.2		0.50	0.17	mg/L			08/11/20 16:18	1
Sulfate	25		5.0	1.0	mg/L			08/11/20 16:18	1
Total Dissolved Solids (TDS)	260		10	4.7	mg/L			08/04/20 10:34	1
Total Suspended Solids	17		4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-139119-5**
Date Collected: 07/29/20 15:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:32	1
Temperature	20.1	HF	1.0	1.0	Degrees C			08/03/20 19:32	1
Chloride	31		3.0	1.0	mg/L			08/11/20 19:03	1
Fluoride	0.41	J	0.50	0.17	mg/L			08/11/20 19:03	1
Sulfate	47		5.0	1.0	mg/L			08/11/20 19:03	1
Total Dissolved Solids (TDS)	370		10	4.7	mg/L			08/04/20 10:34	1
Total Suspended Solids	7.6		4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-139119-6**
Date Collected: 07/29/20 12:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:36	1
Temperature	19.7	HF	1.0	1.0	Degrees C			08/03/20 19:36	1
Chloride	1.8	J	3.0	1.0	mg/L			08/11/20 19:36	1
Fluoride	0.35	J	0.50	0.17	mg/L			08/11/20 19:36	1
Sulfate	1000		50	10	mg/L			08/12/20 16:22	10

General Chemistry (Continued)

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-139119-6**
Date Collected: 07/29/20 12:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	1900	B	20	9.4	mg/L			08/04/20 10:55	1
Total Suspended Solids	54		4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: P6 — **Lab Sample ID: 280-139119-7**
Date Collected: 07/31/20 09:20 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:40	1
Temperature	19.7	HF	1.0	1.0	Degrees C			08/03/20 19:40	1
Chloride	94		3.0	1.0	mg/L			08/11/20 20:08	1
Fluoride	0.79		0.50	0.17	mg/L			08/11/20 20:08	1
Sulfate	350		25	5.2	mg/L			08/11/20 20:25	5
Total Dissolved Solids (TDS)	900		10	4.7	mg/L			08/05/20 08:28	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: P7 — **Lab Sample ID: 280-139119-8**
Date Collected: 07/30/20 15:40 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:44	1
Temperature	19.1	HF	1.0	1.0	Degrees C			08/03/20 19:44	1
Chloride	490		15	5.1	mg/L			08/11/20 21:31	5
Fluoride	0.25	J	0.50	0.17	mg/L			08/11/20 21:14	1
Sulfate	1800		100	21	mg/L			08/12/20 16:38	20
Total Dissolved Solids (TDS)	6200		2000	940	mg/L			08/05/20 08:28	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: P18B — **Lab Sample ID: 280-139119-9**
Date Collected: 07/31/20 10:55 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 19:48	1
Temperature	19.4	HF	1.0	1.0	Degrees C			08/03/20 19:48	1
Chloride	52		3.0	1.0	mg/L			08/11/20 21:47	1
Fluoride	0.33	J	0.50	0.17	mg/L			08/11/20 21:47	1
Sulfate	150		5.0	1.0	mg/L			08/11/20 21:47	1
Total Dissolved Solids (TDS)	550		10	4.7	mg/L			08/05/20 08:28	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			08/03/20 16:01	1

Client Sample ID: DUP — **Lab Sample ID: 280-139119-10**
Date Collected: 07/28/20 12:10 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/05/20 21:05	1
Temperature	22.4	HF	1.0	1.0	Degrees C			08/05/20 21:05	1
Chloride	11		3.0	1.0	mg/L			08/11/20 22:20	1
Fluoride	0.72		0.50	0.17	mg/L			08/11/20 22:20	1
Sulfate	22		5.0	1.0	mg/L			08/11/20 22:20	1
Total Dissolved Solids (TDS)	410		10	4.7	mg/L			08/04/20 10:34	1
Total Suspended Solids	6.8		4.0	1.1	mg/L			08/03/20 16:01	1

General Chemistry

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-139119-11**
Date Collected: 07/30/20 12:05 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 20:09	1
Temperature	21.1	HF	1.0	1.0	Degrees C			08/03/20 20:09	1
Chloride	1300		30	10	mg/L			08/12/20 16:54	10
Fluoride	0.18	J	0.50	0.17	mg/L			08/11/20 22:53	1
Sulfate	4400		250	52	mg/L			08/12/20 17:11	50
Total Dissolved Solids (TDS)	2000		2000	940	mg/L			08/05/20 08:28	1
Total Suspended Solids	320		10	2.8	mg/L			08/03/20 16:01	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-139119-12**
Date Collected: 07/31/20 13:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

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			08/03/20 20:13	1
Temperature	20.6	HF	1.0	1.0	Degrees C			08/03/20 20:13	1
Chloride	440		15	5.1	mg/L			08/11/20 23:42	5
Fluoride	0.31	J	0.50	0.17	mg/L			08/11/20 23:26	1
Sulfate	1100		50	10	mg/L			08/12/20 17:27	10
Total Dissolved Solids (TDS)	2800		2000	940	mg/L			08/05/20 08:28	1
Total Suspended Solids	45		4.0	1.1	mg/L			08/03/20 16:01	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.217		0.0968	0.0988	1.00	0.103	pCi/L	08/06/20 13:36	08/30/20 17:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*08/06/20 13:36*	*08/30/20 17:33*	*1*

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-139119-2**
Date Collected: 07/28/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0532	U	0.0831	0.0832	1.00	0.143	pCi/L	08/06/20 13:36	08/30/20 17:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*08/06/20 13:36*	*08/30/20 17:34*	*1*

Client Sample ID: PNMW-14 — **Lab Sample ID: 280-139119-4**
Date Collected: 07/28/20 15:00 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.0998	0.100	1.00	0.150	pCi/L	08/06/20 13:36	08/30/20 17:34	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110	08/06/20 13:36	08/30/20 17:34	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-139119-5**
Date Collected: 07/29/20 15:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.219		0.108	0.109	1.00	0.136	pCi/L	08/06/20 13:36	08/30/20 17:34	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110	08/06/20 13:36	08/30/20 17:34	1

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-139119-6**
Date Collected: 07/29/20 12:15 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.329		0.127	0.131	1.00	0.119	pCi/L	08/06/20 13:36	09/02/20 08:09	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		40 - 110	08/06/20 13:36	09/02/20 08:09	1

Client Sample ID: P6 — **Lab Sample ID: 280-139119-7**
Date Collected: 07/31/20 09:20 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0396	U	0.0565	0.0566	1.00	0.0961	pCi/L	08/06/20 13:36	08/30/20 17:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.0		40 - 110	08/06/20 13:36	08/30/20 17:35	1

Client Sample ID: P7 — **Lab Sample ID: 280-139119-8**
Date Collected: 07/30/20 15:40 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0643	U	0.0719	0.0721	1.00	0.116	pCi/L	08/06/20 13:36	08/30/20 17:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110	08/06/20 13:36	08/30/20 17:36	1

Client Sample ID: P18B — **Lab Sample ID: 280-139119-9**
Date Collected: 07/31/20 10:55 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0673	U	0.0753	0.0756	1.00	0.120	pCi/L	08/06/20 13:36	08/30/20 17:36	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.0		40 - 110	08/06/20 13:36	08/30/20 17:36	1

Client Sample ID: DUP — **Lab Sample ID: 280-139119-10**
Date Collected: 07/28/20 12:10 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.0862	0.0868	1.00	0.122	pCi/L	08/06/20 13:36	08/30/20 17:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110	08/06/20 13:36	08/30/20 17:36	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-139119-11**
Date Collected: 07/30/20 12:05 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.414**		0.197	0.201	1.00	0.206	pCi/L	08/06/20 13:36	08/30/20 19:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.3		40 - 110	08/06/20 13:36	08/30/20 19:18	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-139119-12**
Date Collected: 07/31/20 13:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.132**		0.0965	0.0972	1.00	0.132	pCi/L	08/06/20 13:36	08/30/20 19:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.4		40 - 110	08/06/20 13:36	08/30/20 19:18	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-139119-1**
Date Collected: 07/28/20 10:25 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.597**		0.299	0.304	1.00	0.437	pCi/L	08/06/20 14:15	08/24/20 12:39	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110	08/06/20 14:15	08/24/20 12:39	1
Y Carrier	76.6		40 - 110	08/06/20 14:15	08/24/20 12:39	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-2B
Date Collected: 07/28/20 12:00
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.250	U	0.280	0.281	1.00	0.460	pCi/L	08/06/20 14:15	08/24/20 12:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*
Y Carrier	*78.1*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*

Client Sample ID: PNMW-14
Date Collected: 07/28/20 15:00
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.247	U	0.359	0.360	1.00	0.602	pCi/L	08/06/20 14:15	08/24/20 12:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*
Y Carrier	*78.9*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*

Client Sample ID: PNMW-19
Date Collected: 07/29/20 15:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.608**		0.297	0.302	1.00	0.426	pCi/L	08/06/20 14:15	08/24/20 12:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*
Y Carrier	*75.5*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*

Client Sample ID: PNMW-16
Date Collected: 07/29/20 12:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.535	U	0.396	0.399	1.00	0.620	pCi/L	08/06/20 14:15	08/24/20 12:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*
Y Carrier	*75.5*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:39*	*1*

Client Sample ID: P6
Date Collected: 07/31/20 09:20
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.281	U	0.282	0.284	1.00	0.459	pCi/L	08/06/20 14:15	08/24/20 12:39	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.0		40 - 110	08/06/20 14:15	08/24/20 12:39	1
Y Carrier	75.5		40 - 110	08/06/20 14:15	08/24/20 12:39	1

Client Sample ID: P7 — **Lab Sample ID: 280-139119-8**
Date Collected: 07/30/20 15:40 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.896		0.390	0.398	1.00	0.572	pCi/L	08/06/20 14:15	08/24/20 12:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110	08/06/20 14:15	08/24/20 12:43	1
Y Carrier	76.3		40 - 110	08/06/20 14:15	08/24/20 12:43	1

Client Sample ID: P18B — **Lab Sample ID: 280-139119-9**
Date Collected: 07/31/20 10:55 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.33		0.518	0.561	1.00	0.618	pCi/L	08/06/20 14:15	08/24/20 12:44	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.0		40 - 110	08/06/20 14:15	08/24/20 12:44	1
Y Carrier	74.4		40 - 110	08/06/20 14:15	08/24/20 12:44	1

Client Sample ID: DUP — **Lab Sample ID: 280-139119-10**
Date Collected: 07/28/20 12:10 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.17		0.427	0.441	1.00	0.602	pCi/L	08/06/20 14:15	08/24/20 12:44	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110	08/06/20 14:15	08/24/20 12:44	1
Y Carrier	76.3		40 - 110	08/06/20 14:15	08/24/20 12:44	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-139119-11**
Date Collected: 07/30/20 12:05 — **Matrix: Water**
Date Received: 07/31/20 15:30

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.88	G	0.906	0.922	1.00	1.36	pCi/L	08/06/20 14:15	08/24/20 12:44	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.3		40 - 110	08/06/20 14:15	08/24/20 12:44	1
Y Carrier	78.9		40 - 110	08/06/20 14:15	08/24/20 12:44	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-18
Date Collected: 07/31/20 13:25
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.06**		0.434	0.445	1.00	0.618	pCi/L	08/06/20 14:15	08/24/20 12:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.4*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:44*	*1*
Y Carrier	*81.9*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:44*	*1*

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

Client Sample ID: PNMW-1B
Date Collected: 07/28/20 10:25
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.814**		0.314	0.320	5.00	0.437	pCi/L		09/03/20 13:34	1

Client Sample ID: PNMW-2B
Date Collected: 07/28/20 12:00
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.303	U	0.292	0.293	5.00	0.460	pCi/L		09/03/20 13:34	1

Client Sample ID: PNMW-14
Date Collected: 07/28/20 15:00
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.359	U	0.373	0.374	5.00	0.602	pCi/L		09/03/20 13:34	1

Client Sample ID: PNMW-19
Date Collected: 07/29/20 15:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.827**		0.316	0.321	5.00	0.426	pCi/L		09/03/20 13:34	1

Client Sample Results

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

Job ID: 280-139119-1

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

Client Sample ID: PNMW-16
Date Collected: 07/29/20 12:15
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.864		0.416	0.420	5.00	0.620	pCi/L		09/03/20 13:34	1

Client Sample ID: P6
Date Collected: 07/31/20 09:20
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.321	U	0.288	0.290	5.00	0.459	pCi/L		09/03/20 13:34	1

Client Sample ID: P7
Date Collected: 07/30/20 15:40
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.960		0.397	0.404	5.00	0.572	pCi/L		09/03/20 13:34	1

Client Sample ID: P18B
Date Collected: 07/31/20 10:55
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.40		0.523	0.566	5.00	0.618	pCi/L		09/03/20 13:34	1

Client Sample ID: DUP
Date Collected: 07/28/20 12:10
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.28		0.436	0.449	5.00	0.602	pCi/L		09/03/20 13:34	1

Client Sample ID: PNMW-20
Date Collected: 07/30/20 12:05
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.29		0.927	0.944	5.00	1.36	pCi/L		09/03/20 13:34	1

Client Sample Results

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

Job ID: 280-139119-1

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

Client Sample ID: PNMW-18
Date Collected: 07/31/20 13:25
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.20		0.445	0.455	5.00	0.618	pCi/L		09/03/20 13:34	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-446125/1-A
Matrix: Water
Analysis Batch: 446518

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		08/07/20 14:00	08/10/20 10:36	1

Lab Sample ID: LCS 240-446125/2-A
Matrix: Water
Analysis Batch: 446518

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446125

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

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-446125/1-A
Matrix: Water
Analysis Batch: 446524

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/07/20 14:00	08/10/20 12:43	1
Arsenic	ND		0.0050	0.00075	mg/L		08/07/20 14:00	08/10/20 12:43	1
Barium	ND		0.0050	0.0022	mg/L		08/07/20 14:00	08/10/20 12:43	1
Beryllium	ND		0.0010	0.00031	mg/L		08/07/20 14:00	08/10/20 12:43	1
Calcium	ND		1.0	0.58	mg/L		08/07/20 14:00	08/10/20 12:43	1
Cadmium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 12:43	1
Cobalt	ND		0.0010	0.00019	mg/L		08/07/20 14:00	08/10/20 12:43	1
Chromium	ND		0.0020	0.00098	mg/L		08/07/20 14:00	08/10/20 12:43	1
Molybdenum	ND		0.010	0.0011	mg/L		08/07/20 14:00	08/10/20 12:43	1
Lead	ND		0.0010	0.00045	mg/L		08/07/20 14:00	08/10/20 12:43	1
Selenium	ND		0.0050	0.00089	mg/L		08/07/20 14:00	08/10/20 12:43	1
Thallium	ND		0.0010	0.00020	mg/L		08/07/20 14:00	08/10/20 12:43	1
Lithium	0.00211	J	0.0080	0.0017	mg/L		08/07/20 14:00	08/10/20 12:43	1

Lab Sample ID: LCS 240-446125/3-A
Matrix: Water
Analysis Batch: 446524

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446125

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.105		mg/L		105	80 - 120
Arsenic	1.00	0.994		mg/L		99	80 - 120
Barium	1.00	0.981		mg/L		98	80 - 120
Beryllium	0.500	0.518		mg/L		104	80 - 120
Calcium	25.0	25.1		mg/L		100	80 - 120
Cadmium	0.500	0.494		mg/L		99	80 - 120
Cobalt	0.500	0.508		mg/L		102	80 - 120
Chromium	0.500	0.488		mg/L		98	80 - 120
Molybdenum	0.500	0.484		mg/L		97	80 - 120
Lead	0.500	0.494		mg/L		99	80 - 120
Selenium	1.00	0.996		mg/L		100	80 - 120
Thallium	1.00	0.972		mg/L		97	80 - 120
Lithium	0.500	0.547		mg/L		109	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-446127/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 446355 — **Prep Batch: 446127**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		08/07/20 12:00	08/07/20 14:29	1

Lab Sample ID: LCS 240-446127/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 446355 — **Prep Batch: 446127**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.48		ug/L		110	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-504672/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504672

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 280-504794/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504794

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 280-504968/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504968

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: 280-139119-3 DU — **Client Sample ID: PNMW-13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504968

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.5	HF	7.7		SU		3	5
Temperature	23.5	HF	22.6		Degrees C		4	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-505209/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			08/11/20 10:35	1
Fluoride	ND		0.50	0.17	mg/L			08/11/20 10:35	1
Sulfate	ND		5.0	1.0	mg/L			08/11/20 10:35	1

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

Lab Sample ID: LCS 280-505209/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	94.4		mg/L		94	90 - 110
Fluoride	5.00	5.13		mg/L		103	90 - 110
Sulfate	100	97.8		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-505209/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	94.2		mg/L		94	90 - 110	0	10
Fluoride	5.00	5.13		mg/L		103	90 - 110	0	10
Sulfate	100	98.2		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-505209/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	2.60	J	mg/L		52	50 - 150
Fluoride	0.500	0.562		mg/L		112	50 - 150
Sulfate	5.00	3.07	J	mg/L		61	50 - 150

Lab Sample ID: 280-139119-4 MS — **Client Sample ID: PNMW-14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.0	J	50.0	52.6		mg/L		101	80 - 120
Fluoride	1.2		5.00	6.19		mg/L		100	80 - 120
Sulfate	25		50.0	77.2		mg/L		105	80 - 120

Lab Sample ID: 280-139119-4 MSD — **Client Sample ID: PNMW-14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.0	J	50.0	53.1		mg/L		102	80 - 120	1	20
Fluoride	1.2		5.00	6.22		mg/L		101	80 - 120	1	20
Sulfate	25		50.0	77.4		mg/L		105	80 - 120	0	20

Lab Sample ID: 280-139119-4 DU — **Client Sample ID: PNMW-14**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505209

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	2.0	J	2.01	J	mg/L		0.4	15
Fluoride	1.2		1.16		mg/L		0.09	15
Sulfate	25		25.1		mg/L		0.4	15

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

Lab Sample ID: MB 280-505371/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			08/12/20 11:01	1
Sulfate	ND		5.0	1.0	mg/L			08/12/20 11:01	1

Lab Sample ID: LCS 280-505371/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.4		mg/L		95	90 - 110
Sulfate	100	99.0		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-505371/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505371

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
Sulfate	100	99.2		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-505371/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505371

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	5.03		mg/L		101	50 - 150
Sulfate	5.00	5.51		mg/L		110	50 - 150

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

Lab Sample ID: MB 280-504500/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/04/20 10:34	1

Lab Sample ID: LCS 280-504500/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	501		mg/L		100	93 - 110

Lab Sample ID: 280-139119-5 DU — **Client Sample ID: PNMW-19**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504500

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	370		455	F3	mg/L		21	10

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

Lab Sample ID: MB 280-504504/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504504

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	19.0		10	4.7	mg/L			08/04/20 10:55	1

Lab Sample ID: LCS 280-504504/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504504

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	502		mg/L		100	93 - 110

Lab Sample ID: 280-139119-6 DU — **Client Sample ID: PNMW-16**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504504

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	1900	B	1860		mg/L		0.3	10

Lab Sample ID: MB 280-504598/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504598

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/05/20 08:28	1

Lab Sample ID: LCS 280-504598/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504598

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	519		mg/L		104	93 - 110

Lab Sample ID: 280-139119-12 DU — **Client Sample ID: PNMW-18**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504598

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	2800		3000		mg/L		7	10

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

Lab Sample ID: MB 280-504408/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504408

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			08/03/20 16:01	1

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

Lab Sample ID: LCS 280-504408/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504408

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	86.4		mg/L		86	79 - 114		

Lab Sample ID: 280-139119-12 DU — **Client Sample ID: PNMW-18**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504408

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	45			42.8		mg/L				5	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-478833/16-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481104 — **Prep Batch: 478833**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01092	U	0.0494	0.0494	1.00	0.110	pCi/L	08/06/20 13:36	08/30/20 19:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.7*		*40 - 110*	*08/06/20 13:36*	*08/30/20 19:19*	*1*

Lab Sample ID: LCS 160-478833/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481104 — **Prep Batch: 478833**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.974		1.09	1.00	0.105	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*76.4*		*40 - 110*

Lab Sample ID: LCSD 160-478833/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481104 — **Prep Batch: 478833**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	10.10		1.07	1.00	0.0980	pCi/L	89	75 - 125	0.06	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*94.0*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-478843/16-A
Matrix: Water
Analysis Batch: 480669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 478843

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7552		0.308	0.316	1.00	0.437	pCi/L	08/06/20 14:15	08/24/20 12:44	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.7*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:44*	*1*
Y Carrier	*84.1*		*40 - 110*	*08/06/20 14:15*	*08/24/20 12:44*	*1*

Lab Sample ID: LCS 160-478843/1-A
Matrix: Water
Analysis Batch: 480499

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 478843

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.87	7.609		1.04	1.00	0.582	pCi/L	97	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*76.4*		*40 - 110*
Y Carrier	*72.1*		*40 - 110*

Lab Sample ID: LCSD 160-478843/2-A
Matrix: Water
Analysis Batch: 480499

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 478843

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.87	7.049		0.913	1.00	0.457	pCi/L	90	75 - 125	0.29	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*94.0*		*40 - 110*
Y Carrier	*76.3*		*40 - 110*

QC Association Summary

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

Job ID: 280-139119-1

Metals

Prep Batch: 446125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total Recoverable	Water	3005A	
280-139119-2	PNMW-2B	Total Recoverable	Water	3005A	
280-139119-3	PNMW-13	Total Recoverable	Water	3005A	
280-139119-4	PNMW-14	Total Recoverable	Water	3005A	
280-139119-5	PNMW-19	Total Recoverable	Water	3005A	
280-139119-6	PNMW-16	Total Recoverable	Water	3005A	
280-139119-7	P6	Total Recoverable	Water	3005A	
280-139119-8	P7	Total Recoverable	Water	3005A	
280-139119-9	P18B	Total Recoverable	Water	3005A	
280-139119-10	DUP	Total Recoverable	Water	3005A	
280-139119-11	PNMW-20	Total Recoverable	Water	3005A	
280-139119-12	PNMW-18	Total Recoverable	Water	3005A	
MB 240-446125/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-446125/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-446125/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 446127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	7470A	
280-139119-2	PNMW-2B	Total/NA	Water	7470A	
280-139119-3	PNMW-13	Total/NA	Water	7470A	
280-139119-4	PNMW-14	Total/NA	Water	7470A	
280-139119-5	PNMW-19	Total/NA	Water	7470A	
280-139119-6	PNMW-16	Total/NA	Water	7470A	
280-139119-7	P6	Total/NA	Water	7470A	
280-139119-8	P7	Total/NA	Water	7470A	
280-139119-9	P18B	Total/NA	Water	7470A	
280-139119-10	DUP	Total/NA	Water	7470A	
280-139119-11	PNMW-20	Total/NA	Water	7470A	
280-139119-12	PNMW-18	Total/NA	Water	7470A	
MB 240-446127/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-446127/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 446355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	7470A	446127
280-139119-2	PNMW-2B	Total/NA	Water	7470A	446127
280-139119-3	PNMW-13	Total/NA	Water	7470A	446127
280-139119-4	PNMW-14	Total/NA	Water	7470A	446127
280-139119-5	PNMW-19	Total/NA	Water	7470A	446127
280-139119-6	PNMW-16	Total/NA	Water	7470A	446127
280-139119-7	P6	Total/NA	Water	7470A	446127
280-139119-8	P7	Total/NA	Water	7470A	446127
280-139119-9	P18B	Total/NA	Water	7470A	446127
280-139119-10	DUP	Total/NA	Water	7470A	446127
280-139119-11	PNMW-20	Total/NA	Water	7470A	446127
280-139119-12	PNMW-18	Total/NA	Water	7470A	446127
MB 240-446127/1-A	Method Blank	Total/NA	Water	7470A	446127
LCS 240-446127/2-A	Lab Control Sample	Total/NA	Water	7470A	446127

QC Association Summary

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

Job ID: 280-139119-1

Metals

Analysis Batch: 446518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total Recoverable	Water	6010C	446125
280-139119-2	PNMW-2B	Total Recoverable	Water	6010C	446125
280-139119-3	PNMW-13	Total Recoverable	Water	6010C	446125
280-139119-4	PNMW-14	Total Recoverable	Water	6010C	446125
280-139119-5	PNMW-19	Total Recoverable	Water	6010C	446125
280-139119-6	PNMW-16	Total Recoverable	Water	6010C	446125
280-139119-7	P6	Total Recoverable	Water	6010C	446125
280-139119-8	P7	Total Recoverable	Water	6010C	446125
280-139119-9	P18B	Total Recoverable	Water	6010C	446125
280-139119-10	DUP	Total Recoverable	Water	6010C	446125
280-139119-11	PNMW-20	Total Recoverable	Water	6010C	446125
280-139119-12	PNMW-18	Total Recoverable	Water	6010C	446125
MB 240-446125/1-A	Method Blank	Total Recoverable	Water	6010C	446125
LCS 240-446125/2-A	Lab Control Sample	Total Recoverable	Water	6010C	446125

Analysis Batch: 446524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total Recoverable	Water	6020A	446125
280-139119-2	PNMW-2B	Total Recoverable	Water	6020A	446125
280-139119-3	PNMW-13	Total Recoverable	Water	6020A	446125
280-139119-4	PNMW-14	Total Recoverable	Water	6020A	446125
280-139119-5	PNMW-19	Total Recoverable	Water	6020A	446125
280-139119-6	PNMW-16	Total Recoverable	Water	6020A	446125
280-139119-7	P6	Total Recoverable	Water	6020A	446125
280-139119-8	P7	Total Recoverable	Water	6020A	446125
280-139119-9	P18B	Total Recoverable	Water	6020A	446125
280-139119-10	DUP	Total Recoverable	Water	6020A	446125
280-139119-11	PNMW-20	Total Recoverable	Water	6020A	446125
280-139119-12	PNMW-18	Total Recoverable	Water	6020A	446125
MB 240-446125/1-A	Method Blank	Total Recoverable	Water	6020A	446125
LCS 240-446125/3-A	Lab Control Sample	Total Recoverable	Water	6020A	446125

General Chemistry

Analysis Batch: 504408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-139119-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-139119-4	PNMW-14	Total/NA	Water	SM 2540D	
280-139119-5	PNMW-19	Total/NA	Water	SM 2540D	
280-139119-6	PNMW-16	Total/NA	Water	SM 2540D	
280-139119-7	P6	Total/NA	Water	SM 2540D	
280-139119-8	P7	Total/NA	Water	SM 2540D	
280-139119-9	P18B	Total/NA	Water	SM 2540D	
280-139119-10	DUP	Total/NA	Water	SM 2540D	
280-139119-11	PNMW-20	Total/NA	Water	SM 2540D	
280-139119-12	PNMW-18	Total/NA	Water	SM 2540D	
MB 280-504408/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-504408/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-139119-12 DU	PNMW-18	Total/NA	Water	SM 2540D	

General Chemistry

Analysis Batch: 504500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-139119-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-139119-4	PNMW-14	Total/NA	Water	SM 2540C	
280-139119-5	PNMW-19	Total/NA	Water	SM 2540C	
280-139119-10	DUP	Total/NA	Water	SM 2540C	
MB 280-504500/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-504500/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-139119-5 DU	PNMW-19	Total/NA	Water	SM 2540C	

Analysis Batch: 504504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-6	PNMW-16	Total/NA	Water	SM 2540C	
MB 280-504504/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-504504/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-139119-6 DU	PNMW-16	Total/NA	Water	SM 2540C	

Analysis Batch: 504598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-7	P6	Total/NA	Water	SM 2540C	
280-139119-8	P7	Total/NA	Water	SM 2540C	
280-139119-9	P18B	Total/NA	Water	SM 2540C	
280-139119-11	PNMW-20	Total/NA	Water	SM 2540C	
280-139119-12	PNMW-18	Total/NA	Water	SM 2540C	
MB 280-504598/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-504598/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-139119-12 DU	PNMW-18	Total/NA	Water	SM 2540C	

Analysis Batch: 504672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	9040B	
280-139119-2	PNMW-2B	Total/NA	Water	9040B	
280-139119-4	PNMW-14	Total/NA	Water	9040B	
280-139119-5	PNMW-19	Total/NA	Water	9040B	
280-139119-6	PNMW-16	Total/NA	Water	9040B	
280-139119-7	P6	Total/NA	Water	9040B	
280-139119-8	P7	Total/NA	Water	9040B	
280-139119-9	P18B	Total/NA	Water	9040B	
280-139119-11	PNMW-20	Total/NA	Water	9040B	
280-139119-12	PNMW-18	Total/NA	Water	9040B	
LCS 280-504672/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 504794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-10	DUP	Total/NA	Water	9040B	
LCS 280-504794/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 504968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-3	PNMW-13	Total/NA	Water	9040B	
LCS 280-504968/4	Lab Control Sample	Total/NA	Water	9040B	
280-139119-3 DU	PNMW-13	Total/NA	Water	9040B	

QC Association Summary

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

Job ID: 280-139119-1

General Chemistry

Analysis Batch: 505209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	9056A	
280-139119-1	PNMW-1B	Total/NA	Water	9056A	
280-139119-2	PNMW-2B	Total/NA	Water	9056A	
280-139119-3	PNMW-13	Total/NA	Water	9056A	
280-139119-4	PNMW-14	Total/NA	Water	9056A	
280-139119-5	PNMW-19	Total/NA	Water	9056A	
280-139119-6	PNMW-16	Total/NA	Water	9056A	
280-139119-7	P6	Total/NA	Water	9056A	
280-139119-7	P6	Total/NA	Water	9056A	
280-139119-8	P7	Total/NA	Water	9056A	
280-139119-8	P7	Total/NA	Water	9056A	
280-139119-9	P18B	Total/NA	Water	9056A	
280-139119-10	DUP	Total/NA	Water	9056A	
280-139119-11	PNMW-20	Total/NA	Water	9056A	
280-139119-12	PNMW-18	Total/NA	Water	9056A	
280-139119-12	PNMW-18	Total/NA	Water	9056A	
MB 280-505209/5	Method Blank	Total/NA	Water	9056A	
LCS 280-505209/3	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-505209/6	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-505209/4	Lab Control Sample	Total/NA	Water	9056A	
280-139119-4 MS	PNMW-14	Total/NA	Water	9056A	
280-139119-4 MSD	PNMW-14	Total/NA	Water	9056A	
280-139119-4 DU	PNMW-14	Total/NA	Water	9056A	

Analysis Batch: 505371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-6	PNMW-16	Total/NA	Water	9056A	
280-139119-8	P7	Total/NA	Water	9056A	
280-139119-11	PNMW-20	Total/NA	Water	9056A	
280-139119-11	PNMW-20	Total/NA	Water	9056A	
280-139119-12	PNMW-18	Total/NA	Water	9056A	
MB 280-505371/6	Method Blank	Total/NA	Water	9056A	
LCS 280-505371/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-505371/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-505371/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 478833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-139119-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-139119-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-139119-5	PNMW-19	Total/NA	Water	PrecSep-21	
280-139119-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-139119-7	P6	Total/NA	Water	PrecSep-21	
280-139119-8	P7	Total/NA	Water	PrecSep-21	
280-139119-9	P18B	Total/NA	Water	PrecSep-21	
280-139119-10	DUP	Total/NA	Water	PrecSep-21	
280-139119-11	PNMW-20	Total/NA	Water	PrecSep-21	
280-139119-12	PNMW-18	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 478833 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-478833/16-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-478833/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-478833/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 478843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139119-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-139119-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-139119-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-139119-5	PNMW-19	Total/NA	Water	PrecSep_0	
280-139119-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-139119-7	P6	Total/NA	Water	PrecSep_0	
280-139119-8	P7	Total/NA	Water	PrecSep_0	
280-139119-9	P18B	Total/NA	Water	PrecSep_0	
280-139119-10	DUP	Total/NA	Water	PrecSep_0	
280-139119-11	PNMW-20	Total/NA	Water	PrecSep_0	
280-139119-12	PNMW-18	Total/NA	Water	PrecSep_0	
MB 160-478843/16-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-478843/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-478843/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: PNMW-1B

Lab Sample ID: 280-139119-1

Date Collected: 07/28/20 10:25
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 11:09	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:07	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 14:47	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:21	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 14:40	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505209	08/11/20 14:56	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504500	08/04/20 10:34	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.67 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:33	JLC	TAL SL
Total/NA	Prep	PrecSep_0			999.67 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: PNMW-2B

Lab Sample ID: 280-139119-2

Date Collected: 07/28/20 12:00
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 11:13	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:10	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 14:49	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:24	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 15:12	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504500	08/04/20 10:34	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.69 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:34	JLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.69 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: PNMW-13

Lab Sample ID: 280-139119-3
Date Collected: 07/30/20 15:25
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 13:34	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:12	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 14:51	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504968	08/06/20 18:46	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 15:45	JAP	TAL DEN

Client Sample ID: PNMW-14

Lab Sample ID: 280-139119-4
Date Collected: 07/28/20 15:00
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:04	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:15	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 14:54	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:28	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 16:18	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504500	08/04/20 10:34	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			750.79 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:34	JLC	TAL SL
Total/NA	Prep	PrecSep_0			750.79 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: PNMW-19

Lab Sample ID: 280-139119-5
Date Collected: 07/29/20 15:15
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:08	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:17	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 14:56	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:32	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 19:03	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504500	08/04/20 10:34	IEU	TAL DEN

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: PNMW-19

Lab Sample ID: 280-139119-5
Date Collected: 07/29/20 15:15
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1001.70 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:34	JLC	TAL SL
Total/NA	Prep	PrecSep_0			1001.70 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: PNMW-16

Lab Sample ID: 280-139119-6
Date Collected: 07/29/20 12:15
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:13	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:20	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:03	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:36	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 19:36	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	505371	08/12/20 16:22	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	504504	08/04/20 10:55	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			750.69 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481340	09/02/20 08:09	SCB	TAL SL
Total/NA	Prep	PrecSep_0			750.69 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: P6

Lab Sample ID: 280-139119-7
Date Collected: 07/31/20 09:20
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:17	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:22	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:05	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:40	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 20:08	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505209	08/11/20 20:25	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504598	08/05/20 08:28	IEU	TAL DEN

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: P6

Lab Sample ID: 280-139119-7
Date Collected: 07/31/20 09:20
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1001.01 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:35	JLC	TAL SL
Total/NA	Prep	PrecSep_0			1001.01 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480499	08/24/20 12:39	JLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: P7

Lab Sample ID: 280-139119-8
Date Collected: 07/30/20 15:40
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:21	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:29	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:07	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:44	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 21:14	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505209	08/11/20 21:31	JAP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	505371	08/12/20 16:38	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	0.5 mL	100 mL	504598	08/05/20 08:28	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:36	JLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480669	08/24/20 12:43	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: P18B

Lab Sample ID: 280-139119-9
Date Collected: 07/31/20 10:55
Matrix: Water
Date Received: 07/31/20 15:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:25	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:32	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:09	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 19:48	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 21:47	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504598	08/05/20 08:28	IEU	TAL DEN

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: P18B
Date Collected: 07/31/20 10:55
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.41 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:36	JLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.41 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480669	08/24/20 12:44	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: DUP
Date Collected: 07/28/20 12:10
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-10
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	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:30	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:34	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:11	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504794	08/05/20 21:05	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 22:20	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	504500	08/04/20 10:34	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.69 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 17:36	JLC	TAL SL
Total/NA	Prep	PrecSep_0			999.69 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480669	08/24/20 12:44	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: PNMW-20
Date Collected: 07/30/20 12:05
Date Received: 07/31/20 15:30

Lab Sample ID: 280-139119-11
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	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:34	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:37	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:14	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 20:09	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 22:53	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	505371	08/12/20 16:54	JAP	TAL DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	505371	08/12/20 17:11	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	0.5 mL	100 mL	504598	08/05/20 08:28	IEU	TAL DEN

Lab Chronicle

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

Job ID: 280-139119-1

Client Sample ID: PNMW-20

Lab Sample ID: 280-139119-11

Date Collected: 07/30/20 12:05
Date Received: 07/31/20 15:30

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	SM 2540D		1	100 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			500.17 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1			481104	08/30/20 19:18	JLC	TAL SL
Total/NA	Prep	PrecSep_0			500.17 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480669	08/24/20 12:44	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Client Sample ID: PNMW-18

Lab Sample ID: 280-139119-12

Date Collected: 07/31/20 13:25
Date Received: 07/31/20 15:30

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	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			446518	08/10/20 14:38	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446125	08/07/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			446524	08/10/20 13:39	RKT	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	446127	08/07/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			446355	08/07/20 15:16	SLD	TAL CAN
Total/NA	Analysis	9040B		1			504672	08/03/20 20:13	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505209	08/11/20 23:26	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505209	08/11/20 23:42	JAP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	505371	08/12/20 17:27	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	0.5 mL	100 mL	504598	08/05/20 08:28	IEU	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	504408	08/03/20 16:01	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			750.45 mL	1.0 g	478833	08/06/20 13:36	RBR	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	481104	08/30/20 19:18	JLC	TAL SL
Total/NA	Prep	PrecSep_0			750.45 mL	1.0 g	478843	08/06/20 14:15	RBR	TAL SL
Total/NA	Analysis	9320		1			480669	08/24/20 12:44	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481574	09/03/20 13:34	SMP	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-139119-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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	07-31-20 *
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	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
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 renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

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

Job ID: 280-139119-1

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
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	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	07-01-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
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
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	10-31-20

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 America

Client Information	Sampler: A. Mogan	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 1
Client Contact: Molly Reeves	Phone: 832-418-3307	E-Mail: Darlene.Bandy@Eurofinset.com		Page: Page: 1 of 2
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 - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

Analysis Requested

280-139119 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 (B), 6020A (Ca,Sb, As, Ba, Be, Cd, Co, Cr, Mo,Pb,Se,Tl, Li) Total Metals	9040B pH, 9056A_28D CL, F, SO4	2540C_Calcd TDS, 2540D TSS	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
PNMW-1B	7-28-20	1025	G	Water	N	N	X	X	X	X	6	
PNMW-2B	7-28-20	1200	G	Water	N	N	X	X	X	X	6	
PNMW-13	7-30-20	1525	G	Water	N	N	X	X			2	
PNMW-14	7-28-20	1500	G	Water	N	N	X	X	X	X	6	
~~PNMW-15~~ PNMW-19	7-29-20	1515	G	Water	N	N	X	X	X	X	6	
PNMW-16	7-29-20	1215	G	Water	N	N	X	X	X	X	6	
P6	7-31-20	0920	G	Water	N	N	X	X	X	X	6	
P7	7-30-20	1540	G	Water	N	N	X	X	X	X	6	
P18B	7-31-20	1055	G	Water	N	N	X	X	X	X	6	
DUP	7-28-20	1210	G	Water	N	N	X	X	X	X	6	
~~EB~~ PNMW-20	7-30-20	1205	G	Water	N	N	X	X	X	X	6	

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
	7-31-20 1530	HDR		07/31/2020 1530	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: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.0°C + 0.2°C + 1.9°C (-0.1) IR#10
KL 07/31/2020

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:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No:
Client Contact: Molly Reeves	Phone:	E-Mail: Darlene.Bandy@Eurofinset.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: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
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 (B), 6020A (Ca,Sb,As,Ba,Be,Cd,Co,Cr,Mo,Pb,Se,Tl,Li) Total Metals	9040B pH, 9056A_28D CL, F, SO4	2540C_Calcd TDS, 2540D TSS	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		
~~PNMW-18~~ PNMW-18	7-31-20	1325	G	Water	N	N	X	X	X	X	6	
~~PNMW-2B~~				Water								
~~PNMW-13~~				Water								
~~PNMW-14~~				Water								
~~PNMW-15~~				Water								
~~PNMW-16~~				Water								
~~P6~~				Water								
~~P7~~				Water								
~~P18B~~				Water								
~~DUP~~				Water								
~~EB~~				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: 7-31-20 1530	Company: HDR	Received by:	Date/Time: 07/31/2020 1530	Company: ETADEN
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: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534240.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139119-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 8/31/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-139119-1)	7/28/20	10:25 Mountain		Water			X	X	X	2	
PNMW-2B (280-139119-2)	7/28/20	12:00 Mountain		Water			X	X	X	2	
PNMW-14 (280-139119-4)	7/28/20	15:00 Mountain		Water			X	X	X	2	
PNMW-19 (280-139119-5)	7/29/20	15:15 Mountain		Water			X	X	X	2	
PNMW-16 (280-139119-6)	7/29/20	12:15 Mountain		Water			X	X	X	2	
P6 (280-139119-7)	7/31/20	09:20 Mountain		Water			X	X	X	2	
P7 (280-139119-8)	7/30/20	15:40 Mountain		Water			X	X	X	2	
P18B (280-139119-9)	7/31/20	10:55 Mountain		Water			X	X	X	2	
DUP (280-139119-10)	7/28/20	12:10 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: [signature]	Date/Time: 8/4/2020 1330	Company	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: [signature]	Date/Time: 8/5/20 09:25	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: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534240.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139119-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 8/31/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-20 (280-139119-11)	7/30/20	12:05 Mountain		Water			X	X	X	2	
PNMW-18 (280-139119-12)	7/31/20	13:25 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: [signature]	Date/Time: 8/4/2020 1330	Company	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: [signature]	Date/Time: 8/5/20 09:25	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

N. 8/15.7

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534239.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139119-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/21/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

56

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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	7470A/7470A_Prep Mercury - 2/2	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-139119-1)	7/28/20	10:25 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-2B (280-139119-2)	7/28/20	12:00 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-13 (280-139119-3)	7/30/20	15:25 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-14 (280-139119-4)	7/28/20	15:00 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-19 (280-139119-5)	7/29/20	15:15 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-16 (280-139119-6)	7/29/20	12:15 Mountain		Water			X	X	X	1	, Use Collision Cell
P6 (280-139119-7)	7/31/20	09:20 Mountain		Water			X	X	X	1	, Use Collision Cell
P7 (280-139119-8)	7/30/20	15:40 Mountain		Water			X	X	X	1	, Use Collision Cell
P18B (280-139119-9)	7/31/20	10:55 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 *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
[signature]	8/4/2020 1345		[signature]	8-5-20 1020	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 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: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534239.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139119-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/21/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	7470A/7470A_Prep Mercury - 2/2	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
DUP (280-139119-10)	7/28/20	12:10 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-20 (280-139119-11)	7/30/20	12:05 Mountain		Water			X	X	X	1	, Use Collision Cell
PNMW-18 (280-139119-12)	7/31/20	13:25 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 *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
[signature]	8/4/2020 1345		[signature]	8-5-20 1020	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Client ETA Site Name _____ Cooler unpacked by: Tamy Roger

Cooler Received on 8-5-20 Opened on 8-6-20

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. ____ °C Corrected Cooler Temp. ____ °C
   IR GUN #IR-11 (CF **+0.9**°C) Observed Cooler Temp. 14.8 °C Corrected Cooler Temp. 15.7 °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# HC911298
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: 280-139119-1

Login Number: 139119
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	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: 280-139119-1

Login Number: 139119
List Number: 2
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 08/05/20 01:11 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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-139119-1

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
280-139119-1	PNMW-1B	90.3						
280-139119-2	PNMW-2B	90.3						
280-139119-4	PNMW-14	91.5						
280-139119-5	PNMW-19	91.2						
280-139119-6	PNMW-16	87.6						
280-139119-7	P6	94.0						
280-139119-8	P7	91.5						
280-139119-9	P18B	77.0						
280-139119-10	DUP	82.8						
280-139119-11	PNMW-20	77.3						
280-139119-12	PNMW-18	92.4						
LCS 160-478833/1-A	Lab Control Sample	76.4						
LCSD 160-478833/2-A	Lab Control Sample Dup	94.0						
MB 160-478833/16-A	Method Blank	93.7						

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)					
280-139119-1	PNMW-1B	90.3	76.6					
280-139119-2	PNMW-2B	90.3	78.1					
280-139119-4	PNMW-14	91.5	78.9					
280-139119-5	PNMW-19	91.2	75.5					
280-139119-6	PNMW-16	87.6	75.5					
280-139119-7	P6	94.0	75.5					
280-139119-8	P7	91.5	76.3					
280-139119-9	P18B	77.0	74.4					
280-139119-10	DUP	82.8	76.3					
280-139119-11	PNMW-20	77.3	78.9					
280-139119-12	PNMW-18	92.4	81.9					
LCS 160-478843/1-A	Lab Control Sample	76.4	72.1					
LCSD 160-478843/2-A	Lab Control Sample Dup	94.0	76.3					
MB 160-478843/16-A	Method Blank	93.7	84.1					

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: 280-139176-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Shelby Turner

Authorized for release by:
9/10/2020 4:52:37 PM
Shelby Turner, Project Manager I
Shelby.Turner@Eurofinset.com

Designee for

Darlene Bandy, Project Manager I
(303)736-0188
Darlene.Bandy@Eurofinset.com

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-139176-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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
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: 280-139176-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-139176-1

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 8/4/2020 3:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

Receipt Exceptions

The field sampler's name is not documented on the COC.

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): PNMW-15 (280-139176-4). The sample was logged for all methods listed on the COC per volume received.

Volume was not received for the requested Metals analysis for sample PNMW-17 (280-139176-2). The laboratory will properly preserve an aliquot of unpreserved volume to proceed with analysis.

TOTAL RECOVERABLE METALS
Samples PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/12/2020 and analyzed on 08/14/2020.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 08/12/2020 and analyzed on 08/13/2020 and 08/14/2020.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-13 (280-139176-1), PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 08/10/2020.

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

Job ID: 280-139176-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

TOTAL SUSPENDED SOLIDS
Samples PNMW-13 (280-139176-1), PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/10/2020.

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

CORROSIVITY (PH)
Samples PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 08/05/2020, 08/06/2020 and 08/07/2020.

Sample pH did not equilibrate to 0.05 pH units after 3 measurements for the following sample: EB (280-139176-3). This was observed in a previous analysis thus the sample was not rerun.

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

ANIONS (28 DAYS)
Samples PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 08/10/2020.

Samples PNMW-17 (280-139176-2)[5X] and PNMW-15 (280-139176-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

RADIUM-226 (GFPC)
Samples PNMW-13 (280-139176-1), PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 08/12/2020 and analyzed on 09/05/2020.

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.

Insufficient sample volume was available to perform a sample duplicate for the following samples: EB (280-139176-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: PNMW-13 (280-139176-1), PNMW-17 (280-139176-2) and PNMW-15 (280-139176-4).

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

RADIUM-228
Samples PNMW-13 (280-139176-1), PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/12/2020 and analyzed on 08/27/2020.

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.

Insufficient sample volume was available to perform a sample duplicate for the following sample: EB (280-139176-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The following samples did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix

Job ID: 280-139176-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

interferences: PNMW-13 (280-139176-1) and PNMW-17 (280-139176-2). The data have been reported with this narrative.

The following samples were prepared at a reduced aliquot due to discoloration and cloudy appearance: PNMW-13 (280-139176-1), PNMW-17 (280-139176-2) and PNMW-15 (280-139176-4).

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

RADIUM-226/RADIUM-228 (GFPC)
Samples PNMW-13 (280-139176-1), PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 09/09/2020.

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

Detection Summary

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

Job ID: 280-139176-1

Client Sample ID: PNMW-13 — Lab Sample ID: 280-139176-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	410		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	320		10	2.8	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-17 — Lab Sample ID: 280-139176-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.20		0.10	0.023	mg/L	1		6010C	Total Recoverable
Arsenic	0.0029	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.14		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00050	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0039		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.017		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0011	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0076		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.017		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.047		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	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	320		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.30	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	490		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2300		25	12	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	430		10	2.8	mg/L	1		SM 2540D	Total/NA

Client Sample ID: EB — Lab Sample ID: 280-139176-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0019	J	0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-139176-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.31		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.045		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	94		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0018		0.0010	0.00019	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 280-139176-1

Client Sample ID: PNMW-15 (Continued)

Lab Sample ID: 280-139176-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0044		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0015	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0020		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.089		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	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	4.4		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.52		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	360		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	910		13	6.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	120		6.7	1.8	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-139176-1

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
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-139176-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-139176-1	PNMW-13	Water	08/03/20 12:25	08/04/20 15:00	
280-139176-2	PNMW-17	Water	08/04/20 11:25	08/04/20 15:00	
280-139176-3	EB	Water	08/04/20 14:15	08/04/20 15:00	
280-139176-4	PNMW-15	Water	08/03/20 10:30	08/04/20 15:00	

Client Sample Results

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

Job ID: 280-139176-1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-139176-2**
Date Collected: 08/04/20 11:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.20**		0.10	0.023	mg/L		08/12/20 14:00	08/14/20 16:27	1

Client Sample ID: EB — **Lab Sample ID: 280-139176-3**
Date Collected: 08/04/20 14:15 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		08/12/20 14:00	08/14/20 16:31	1

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-139176-4**
Date Collected: 08/03/20 10:30 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.31**		0.10	0.023	mg/L		08/12/20 14:00	08/14/20 16:36	1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-139176-2**
Date Collected: 08/04/20 11:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/12/20 14:00	08/13/20 13:57	1
Arsenic	**0.0029**	**J**	0.0050	0.00075	mg/L		08/12/20 14:00	08/13/20 13:57	1
Barium	**0.14**		0.0050	0.0022	mg/L		08/12/20 14:00	08/13/20 13:57	1
Beryllium	**0.00050**	**J**	0.0010	0.00031	mg/L		08/12/20 14:00	08/13/20 13:57	1
Calcium	**240**		1.0	0.58	mg/L		08/12/20 14:00	08/13/20 13:57	1
Cadmium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 13:57	1
Cobalt	**0.0039**		0.0010	0.00019	mg/L		08/12/20 14:00	08/13/20 13:57	1
Chromium	**0.017**		0.0020	0.00098	mg/L		08/12/20 14:00	08/13/20 13:57	1
Molybdenum	**0.0011**	**J**	0.010	0.0011	mg/L		08/12/20 14:00	08/13/20 13:57	1
Lead	**0.0076**		0.0010	0.00045	mg/L		08/12/20 14:00	08/14/20 14:54	1
Selenium	**0.017**		0.0050	0.00089	mg/L		08/12/20 14:00	08/13/20 13:57	1
Thallium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 13:57	1
Lithium	**0.047**		0.0080	0.0017	mg/L		08/12/20 14:00	08/13/20 13:57	1

Client Sample ID: EB — **Lab Sample ID: 280-139176-3**
Date Collected: 08/04/20 14:15 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/12/20 14:00	08/13/20 14:00	1
Arsenic	ND		0.0050	0.00075	mg/L		08/12/20 14:00	08/13/20 14:00	1
Barium	ND		0.0050	0.0022	mg/L		08/12/20 14:00	08/13/20 14:00	1
Beryllium	ND		0.0010	0.00031	mg/L		08/12/20 14:00	08/13/20 14:00	1
Calcium	ND		1.0	0.58	mg/L		08/12/20 14:00	08/13/20 14:00	1
Cadmium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 14:00	1
Cobalt	ND		0.0010	0.00019	mg/L		08/12/20 14:00	08/13/20 14:00	1
Chromium	ND		0.0020	0.00098	mg/L		08/12/20 14:00	08/13/20 14:00	1
Molybdenum	ND		0.010	0.0011	mg/L		08/12/20 14:00	08/13/20 14:00	1
Lead	ND		0.0010	0.00045	mg/L		08/12/20 14:00	08/14/20 14:57	1
Selenium	ND		0.0050	0.00089	mg/L		08/12/20 14:00	08/13/20 14:00	1
Thallium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 14:00	1
Lithium	**0.0019**	**J**	0.0080	0.0017	mg/L		08/12/20 14:00	08/13/20 14:00	1

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

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-139176-4**
Date Collected: 08/03/20 10:30 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/12/20 14:00	08/13/20 14:02	1
Arsenic	ND		0.0050	0.00075	mg/L		08/12/20 14:00	08/13/20 14:02	1
Barium	**0.045**		0.0050	0.0022	mg/L		08/12/20 14:00	08/13/20 14:02	1
Beryllium	ND		0.0010	0.00031	mg/L		08/12/20 14:00	08/13/20 14:02	1
Calcium	**94**		1.0	0.58	mg/L		08/12/20 14:00	08/13/20 14:02	1
Cadmium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 14:02	1
Cobalt	**0.0018**		0.0010	0.00019	mg/L		08/12/20 14:00	08/13/20 14:02	1
Chromium	**0.0044**		0.0020	0.00098	mg/L		08/12/20 14:00	08/13/20 14:02	1
Molybdenum	**0.0015**	**J**	0.010	0.0011	mg/L		08/12/20 14:00	08/13/20 14:02	1
Lead	**0.0020**		0.0010	0.00045	mg/L		08/12/20 14:00	08/14/20 14:59	1
Selenium	ND		0.0050	0.00089	mg/L		08/12/20 14:00	08/13/20 14:02	1
Thallium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 14:02	1
Lithium	**0.089**		0.0080	0.0017	mg/L		08/12/20 14:00	08/13/20 14:02	1

General Chemistry

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139176-1**
Date Collected: 08/03/20 12:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	**410**		10	4.7	mg/L			08/10/20 17:43	1
Total Suspended Solids	**320**		10	2.8	mg/L			08/10/20 17:39	1

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-139176-2**
Date Collected: 08/04/20 11:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

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			08/05/20 20:53	1
Temperature	**21.2**	**HF**	1.0	1.0	Degrees C			08/05/20 20:53	1
Chloride	**320**		15	5.1	mg/L			08/10/20 22:13	5
Fluoride	**0.30**	**J**	0.50	0.17	mg/L			08/10/20 21:56	1
Sulfate	**490**		25	5.2	mg/L			08/10/20 22:13	5
Total Dissolved Solids (TDS)	**2300**		25	12	mg/L			08/10/20 17:43	1
Total Suspended Solids	**430**		10	2.8	mg/L			08/10/20 17:39	1

Client Sample ID: EB — **Lab Sample ID: 280-139176-3**
Date Collected: 08/04/20 14:15 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**8.5**	**HF**	0.1	0.1	SU			08/06/20 18:56	1
Temperature	**22.0**	**HF**	1.0	1.0	Degrees C			08/06/20 18:56	1
Chloride	ND		3.0	1.0	mg/L			08/10/20 22:29	1
Fluoride	ND		0.50	0.17	mg/L			08/10/20 22:29	1
Sulfate	ND		5.0	1.0	mg/L			08/10/20 22:29	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/10/20 17:43	1
Total Suspended Solids	**1.2**	**J**	4.0	1.1	mg/L			08/10/20 17:39	1

General Chemistry

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-139176-4**
Date Collected: 08/03/20 10:30 — **Matrix: Water**
Date Received: 08/04/20 15:00

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			08/07/20 21:30	1
Temperature	22.6	HF	1.0	1.0	Degrees C			08/07/20 21:30	1
Chloride	4.4		3.0	1.0	mg/L			08/10/20 18:23	1
Fluoride	0.52		0.50	0.17	mg/L			08/10/20 18:23	1
Sulfate	360		25	5.2	mg/L			08/10/20 23:35	5
Total Dissolved Solids (TDS)	910		13	6.3	mg/L			08/10/20 17:43	1
Total Suspended Solids	120		6.7	1.8	mg/L			08/10/20 17:39	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139176-1**
Date Collected: 08/03/20 12:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.24		0.328	0.347	1.00	0.217	pCi/L	08/12/20 13:14	09/05/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*62.8*		*40 - 110*	*08/12/20 13:14*	*09/05/20 07:56*	*1*

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-139176-2**
Date Collected: 08/04/20 11:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.283		0.180	0.182	1.00	0.229	pCi/L	08/12/20 13:14	09/05/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.1*		*40 - 110*	*08/12/20 13:14*	*09/05/20 07:56*	*1*

Client Sample ID: EB — **Lab Sample ID: 280-139176-3**
Date Collected: 08/04/20 14:15 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0525	U	0.0601	0.0603	1.00	0.0958	pCi/L	08/12/20 13:14	09/05/20 07:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.5*		*40 - 110*	*08/12/20 13:14*	*09/05/20 07:57*	*1*

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-139176-4**
Date Collected: 08/03/20 10:30 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.332		0.187	0.189	1.00	0.235	pCi/L	08/12/20 13:14	09/05/20 07:57	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		40 - 110	08/12/20 13:14	09/05/20 07:57	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-13 — **Lab Sample ID: 280-139176-1**
Date Collected: 08/03/20 12:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.55	G	0.852	0.864	1.00	1.28	pCi/L	08/12/20 13:47	08/27/20 12:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	62.8		40 - 110	08/12/20 13:47	08/27/20 12:56	1
Y Carrier	81.5		40 - 110	08/12/20 13:47	08/27/20 12:56	1

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-139176-2**
Date Collected: 08/04/20 11:25 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.652	U G	0.706	0.709	1.00	1.16	pCi/L	08/12/20 13:47	08/27/20 12:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	67.1		40 - 110	08/12/20 13:47	08/27/20 12:56	1
Y Carrier	82.6		40 - 110	08/12/20 13:47	08/27/20 12:56	1

Client Sample ID: EB — **Lab Sample ID: 280-139176-3**
Date Collected: 08/04/20 14:15 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.125	U	0.299	0.299	1.00	0.514	pCi/L	08/12/20 13:47	08/27/20 12:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	75.5		40 - 110	08/12/20 13:47	08/27/20 12:56	1
Y Carrier	82.2		40 - 110	08/12/20 13:47	08/27/20 12:56	1

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-139176-4**
Date Collected: 08/03/20 10:30 — **Matrix: Water**
Date Received: 08/04/20 15:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.333	U	0.588	0.589	1.00	0.998	pCi/L	08/12/20 13:47	08/27/20 12:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		40 - 110	08/12/20 13:47	08/27/20 12:56	1
Y Carrier	84.1		40 - 110	08/12/20 13:47	08/27/20 12:56	1

Client Sample Results

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

Job ID: 280-139176-1

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

Client Sample ID: PNMW-13
Date Collected: 08/03/20 12:25
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**2.79**		0.913	0.931	5.00	1.28	pCi/L		09/09/20 13:45	1

Client Sample ID: PNMW-17
Date Collected: 08/04/20 11:25
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.935	U	0.729	0.732	5.00	1.16	pCi/L		09/09/20 13:45	1

Client Sample ID: EB
Date Collected: 08/04/20 14:15
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.177	U	0.305	0.305	5.00	0.514	pCi/L		09/09/20 13:45	1

Client Sample ID: PNMW-15
Date Collected: 08/03/20 10:30
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.665	U	0.617	0.619	5.00	0.998	pCi/L		09/09/20 13:45	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-446760/1-A
Matrix: Water
Analysis Batch: 447390

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		08/12/20 14:00	08/14/20 15:41	1

Lab Sample ID: LCS 240-446760/2-A
Matrix: Water
Analysis Batch: 447390

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446760

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

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-446760/1-A
Matrix: Water
Analysis Batch: 447195

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/12/20 14:00	08/13/20 13:22	1
Arsenic	ND		0.0050	0.00075	mg/L		08/12/20 14:00	08/13/20 13:22	1
Barium	ND		0.0050	0.0022	mg/L		08/12/20 14:00	08/13/20 13:22	1
Beryllium	ND		0.0010	0.00031	mg/L		08/12/20 14:00	08/13/20 13:22	1
Calcium	ND		1.0	0.58	mg/L		08/12/20 14:00	08/13/20 13:22	1
Cadmium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 13:22	1
Cobalt	ND		0.0010	0.00019	mg/L		08/12/20 14:00	08/13/20 13:22	1
Chromium	ND		0.0020	0.00098	mg/L		08/12/20 14:00	08/13/20 13:22	1
Molybdenum	ND		0.010	0.0011	mg/L		08/12/20 14:00	08/13/20 13:22	1
Selenium	ND		0.0050	0.00089	mg/L		08/12/20 14:00	08/13/20 13:22	1
Thallium	ND		0.0010	0.00020	mg/L		08/12/20 14:00	08/13/20 13:22	1
Lithium	ND		0.0080	0.0017	mg/L		08/12/20 14:00	08/13/20 13:22	1

Lab Sample ID: MB 240-446760/1-A
Matrix: Water
Analysis Batch: 447397

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00045	mg/L		08/12/20 14:00	08/14/20 14:50	1

Lab Sample ID: LCS 240-446760/3-A
Matrix: Water
Analysis Batch: 447195

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.104		mg/L		104	80 - 120
Arsenic	1.00	0.973		mg/L		97	80 - 120
Barium	1.00	0.965		mg/L		97	80 - 120
Beryllium	0.500	0.481		mg/L		96	80 - 120
Calcium	25.0	24.7		mg/L		99	80 - 120
Cadmium	0.500	0.488		mg/L		98	80 - 120
Cobalt	0.500	0.509		mg/L		102	80 - 120
Chromium	0.500	0.492		mg/L		98	80 - 120
Molybdenum	0.500	0.478		mg/L		96	80 - 120

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

Lab Sample ID: LCS 240-446760/3-A
Matrix: Water
Analysis Batch: 447195

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	1.00	0.977		mg/L		98	80 - 120
Thallium	1.00	0.983		mg/L		98	80 - 120
Lithium	0.500	0.508		mg/L		102	80 - 120

Lab Sample ID: LCS 240-446760/3-A
Matrix: Water
Analysis Batch: 447397

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.500	0.528		mg/L		106	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-504794/4
Matrix: Water
Analysis Batch: 504794

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 280-504968/4
Matrix: Water
Analysis Batch: 504968

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 280-505098/4
Matrix: Water
Analysis Batch: 505098

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 280-505071/6
Matrix: Water
Analysis Batch: 505071

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			08/10/20 11:31	1
Fluoride	ND		0.50	0.17	mg/L			08/10/20 11:31	1
Sulfate	ND		5.0	1.0	mg/L			08/10/20 11:31	1

Lab Sample ID: LCS 280-505071/4
Matrix: Water
Analysis Batch: 505071

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.1		mg/L		96	90 - 110

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

Lab Sample ID: LCS 280-505071/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	5.08		mg/L		102	90 - 110
Sulfate	100	98.5		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-505071/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505071

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.6		mg/L		96	90 - 110	0	10
Fluoride	5.00	5.09		mg/L		102	90 - 110	0	10
Sulfate	100	98.8		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-505071/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505071

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	5.06		mg/L		101	50 - 150
Fluoride	0.500	0.527		mg/L		105	50 - 150
Sulfate	5.00	5.58		mg/L		112	50 - 150

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

Lab Sample ID: MB 280-505163/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505163

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/10/20 17:43	1

Lab Sample ID: LCS 280-505163/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	526		mg/L		105	93 - 110

Lab Sample ID: 280-139176-1 DU — **Client Sample ID: PNMW-13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505163

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	410		421		mg/L		2	10

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

Lab Sample ID: MB 280-505162/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505162

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			08/10/20 17:39	1

Lab Sample ID: LCS 280-505162/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505162

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	108		mg/L		108	79 - 114

Lab Sample ID: 280-139176-1 DU — **Client Sample ID: PNMW-13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 505162

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	320		326		mg/L		3	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-479292/15-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481663 — **Prep Batch: 479292**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02990	U	0.0835	0.0835	1.00	0.162	pCi/L	08/12/20 13:14	09/05/20 09:47	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.1*		*40 - 110*	*08/12/20 13:14*	*09/05/20 09:47*	*1*

Lab Sample ID: LCS 160-479292/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481663 — **Prep Batch: 479292**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	22.7	21.86		2.28	1.00	0.175	pCi/L	96	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.6*		*40 - 110*

Lab Sample ID: LCSD 160-479292/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481663 — **Prep Batch: 479292**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	22.7	20.92		2.21	1.00	0.183	pCi/L	92	75 - 125	0.21	1

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

Lab Sample ID: LCSD 160-479292/2-A
Matrix: Water
Analysis Batch: 481663

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 479292

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	80.1		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-479294/15-A
Matrix: Water
Analysis Batch: 480862

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479294

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.3725	U	0.427	0.429	1.00	0.833	pCi/L	08/12/20 13:47	08/27/20 12:54	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110	08/12/20 13:47	08/27/20 12:54	1
Y Carrier	85.2		40 - 110	08/12/20 13:47	08/27/20 12:54	1

Lab Sample ID: LCS 160-479294/1-A
Matrix: Water
Analysis Batch: 480861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479294

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			15.7	15.39		1.95	1.00	0.964	pCi/L	98	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	86.4		40 - 110

Lab Sample ID: LCSD 160-479294/2-A
Matrix: Water
Analysis Batch: 480861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 479294

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			15.7	14.48		1.89	1.00	0.947	pCi/L	92	75 - 125	0.24	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	80.1		40 - 110
Y Carrier	84.5		40 - 110

QC Association Summary

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

Job ID: 280-139176-1

Metals

Prep Batch: 446760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total Recoverable	Water	3005A	
280-139176-3	EB	Total Recoverable	Water	3005A	
280-139176-4	PNMW-15	Total Recoverable	Water	3005A	
MB 240-446760/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-446760/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-446760/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 447195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total Recoverable	Water	6020A	446760
280-139176-3	EB	Total Recoverable	Water	6020A	446760
280-139176-4	PNMW-15	Total Recoverable	Water	6020A	446760
MB 240-446760/1-A	Method Blank	Total Recoverable	Water	6020A	446760
LCS 240-446760/3-A	Lab Control Sample	Total Recoverable	Water	6020A	446760

Analysis Batch: 447390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total Recoverable	Water	6010C	446760
280-139176-3	EB	Total Recoverable	Water	6010C	446760
280-139176-4	PNMW-15	Total Recoverable	Water	6010C	446760
MB 240-446760/1-A	Method Blank	Total Recoverable	Water	6010C	446760
LCS 240-446760/2-A	Lab Control Sample	Total Recoverable	Water	6010C	446760

Analysis Batch: 447397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total Recoverable	Water	6020A	446760
280-139176-3	EB	Total Recoverable	Water	6020A	446760
280-139176-4	PNMW-15	Total Recoverable	Water	6020A	446760
MB 240-446760/1-A	Method Blank	Total Recoverable	Water	6020A	446760
LCS 240-446760/3-A	Lab Control Sample	Total Recoverable	Water	6020A	446760

General Chemistry

Analysis Batch: 504794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total/NA	Water	9040B	
LCS 280-504794/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 504968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-3	EB	Total/NA	Water	9040B	
LCS 280-504968/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 505071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total/NA	Water	9056A	
280-139176-2	PNMW-17	Total/NA	Water	9056A	
280-139176-3	EB	Total/NA	Water	9056A	
280-139176-4	PNMW-15	Total/NA	Water	9056A	
280-139176-4	PNMW-15	Total/NA	Water	9056A	
MB 280-505071/6	Method Blank	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 505071 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-505071/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-505071/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-505071/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 505098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-4	PNMW-15	Total/NA	Water	9040B	
LCS 280-505098/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 505162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-1	PNMW-13	Total/NA	Water	SM 2540D	
280-139176-2	PNMW-17	Total/NA	Water	SM 2540D	
280-139176-3	EB	Total/NA	Water	SM 2540D	
280-139176-4	PNMW-15	Total/NA	Water	SM 2540D	
MB 280-505162/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-505162/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-139176-1 DU	PNMW-13	Total/NA	Water	SM 2540D	

Analysis Batch: 505163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-1	PNMW-13	Total/NA	Water	SM 2540C	
280-139176-2	PNMW-17	Total/NA	Water	SM 2540C	
280-139176-3	EB	Total/NA	Water	SM 2540C	
280-139176-4	PNMW-15	Total/NA	Water	SM 2540C	
MB 280-505163/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-505163/1	Lab Control Sample	Total/NA	Water	SM 2540C	
280-139176-1 DU	PNMW-13	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 479292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-1	PNMW-13	Total/NA	Water	PrecSep-21	
280-139176-2	PNMW-17	Total/NA	Water	PrecSep-21	
280-139176-3	EB	Total/NA	Water	PrecSep-21	
280-139176-4	PNMW-15	Total/NA	Water	PrecSep-21	
MB 160-479292/15-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-479292/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-479292/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 479294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-1	PNMW-13	Total/NA	Water	PrecSep_0	
280-139176-2	PNMW-17	Total/NA	Water	PrecSep_0	
280-139176-3	EB	Total/NA	Water	PrecSep_0	
280-139176-4	PNMW-15	Total/NA	Water	PrecSep_0	
MB 160-479294/15-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-479294/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-479294/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 280-139176-1

Client Sample ID: PNMW-13

Lab Sample ID: 280-139176-1
Date Collected: 08/03/20 12:25
Matrix: Water
Date Received: 08/04/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	505163	08/10/20 17:43	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	100 mL	250 mL	505162	08/10/20 17:39	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			500.44 mL	1.0 g	479292	08/12/20 13:14	MNH	TAL SL
Total/NA	Analysis	9315		1			481663	09/05/20 07:56	SCB	TAL SL
Total/NA	Prep	PrecSep_0			500.44 mL	1.0 g	479294	08/12/20 13:47	MNH	TAL SL
Total/NA	Analysis	9320		1			480861	08/27/20 12:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481832	09/09/20 13:45	CAH	TAL SL

Client Sample ID: PNMW-17

Lab Sample ID: 280-139176-2
Date Collected: 08/04/20 11:25
Matrix: Water
Date Received: 08/04/20 15:00

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	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			447390	08/14/20 16:27	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447195	08/13/20 13:57	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447397	08/14/20 14:54	RKT	TAL CAN
Total/NA	Analysis	9040B		1			504794	08/05/20 20:53	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505071	08/10/20 21:56	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505071	08/10/20 22:13	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	505163	08/10/20 17:43	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	100 mL	250 mL	505162	08/10/20 17:39	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.19 mL	1.0 g	479292	08/12/20 13:14	MNH	TAL SL
Total/NA	Analysis	9315		1			481663	09/05/20 07:56	SCB	TAL SL
Total/NA	Prep	PrecSep_0			499.19 mL	1.0 g	479294	08/12/20 13:47	MNH	TAL SL
Total/NA	Analysis	9320		1			480861	08/27/20 12:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481832	09/09/20 13:45	CAH	TAL SL

Client Sample ID: EB

Lab Sample ID: 280-139176-3
Date Collected: 08/04/20 14:15
Matrix: Water
Date Received: 08/04/20 15:00

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	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			447390	08/14/20 16:31	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447195	08/13/20 14:00	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447397	08/14/20 14:57	RKT	TAL CAN
Total/NA	Analysis	9040B		1			504968	08/06/20 18:56	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505071	08/10/20 22:29	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	505163	08/10/20 17:43	SVC	TAL DEN

Lab Chronicle

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

Job ID: 280-139176-1

Client Sample ID: EB

Lab Sample ID: 280-139176-3

Date Collected: 08/04/20 14:15
Matrix: Water
Date Received: 08/04/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	505162	08/10/20 17:39	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.10 mL	1.0 g	479292	08/12/20 13:14	MNH	TAL SL
Total/NA	Analysis	9315		1			481663	09/05/20 07:57	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.10 mL	1.0 g	479294	08/12/20 13:47	MNH	TAL SL
Total/NA	Analysis	9320		1			480861	08/27/20 12:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481832	09/09/20 13:45	CAH	TAL SL

Client Sample ID: PNMW-15

Lab Sample ID: 280-139176-4

Date Collected: 08/03/20 10:30
Matrix: Water
Date Received: 08/04/20 15:00

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	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			447390	08/14/20 16:36	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447195	08/13/20 14:02	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	446760	08/12/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			447397	08/14/20 14:59	RKT	TAL CAN
Total/NA	Analysis	9040B		1			505098	08/07/20 21:30	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	505071	08/10/20 18:23	JAP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	505071	08/10/20 23:35	JAP	TAL DEN
Total/NA	Analysis	SM 2540C		1	75 mL	100 mL	505163	08/10/20 17:43	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	150 mL	250 mL	505162	08/10/20 17:39	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.96 mL	1.0 g	479292	08/12/20 13:14	MNH	TAL SL
Total/NA	Analysis	9315		1			481663	09/05/20 07:57	SCB	TAL SL
Total/NA	Prep	PrecSep_0			499.96 mL	1.0 g	479294	08/12/20 13:47	MNH	TAL SL
Total/NA	Analysis	9320		1			480861	08/27/20 12:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			481832	09/09/20 13:45	CAH	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-139176-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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	07-31-20 *
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	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
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 renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

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

Job ID: 280-139176-1

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
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	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	07-01-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
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
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	10-31-20

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 America

Client Information	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-101026-30221.1
Client Contact: Molly Reeves	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com		Page: 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 - Pawnee	Project #: 28014378			
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	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		
PNMW-13	8-3-20	1225	G	Water	N	N			X	X	4	
PNMW-17	8-4-20	1125	G	Water	N	N	X	X	X	X	6	
EB	8-4-20	1415	G	Water	N	N	X	X	X	X	6	

280-139176 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
[signature]	8-4-20 1500	HDR	[signature]	8-4-20 1500	EIA Pm
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: 3.7, IR10-01 JO 08/04/2020

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: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534856.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139176-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 9/1/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-13 (280-139176-1)	8/3/20	12:25 Mountain		Water			X	X	X	2	
PNMW-17 (280-139176-2)	8/4/20	11:25 Mountain		Water			X	X	X	2	
EB (280-139176-3)	8/4/20	14:15 Mountain		Water			X	X	X	2	
PNMW-15 (280-139176-4)	8/3/20	10:30 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: [signature]	Date/Time: 8/10/2020 1400	Company	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: [signature]	Date/Time: 8/11/20 09:18	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

21.4/22.3

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-534858.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-139176-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/24/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

S09

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)	6010C/3005A Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-17 (280-139176-2)	8/4/20	11:25 Mountain		Water			X	X	1	, Use Collision Cell
EB (280-139176-3)	8/4/20	14:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-15 (280-139176-4)	8/3/20	10:30 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 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: 8/10/2020 1345	Company	Received by:	Date/Time: 8-11-20 1030	Company ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 01/16/2019

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

Client ETA Denver Site Name_____ Cooler unpacked by: Matt Snyder

Cooler Received on 8-11-20 Opened on 8-11-20

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._____ °C Corrected Cooler Temp._____ °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp 21.4 °C Corrected Cooler Temp. 22.3 °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# HC911298
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: 280-139176-1

Login Number: 139176
List Number: 1
Creator: O'Hara, Jake F

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
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: 280-139176-1

Login Number: 139176
List Number: 3
Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 08/11/20 04:40 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: 280-139176-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
280-139176-1	PNMW-13	62.8							
280-139176-2	PNMW-17	67.1							
280-139176-3	EB	75.5							
280-139176-4	PNMW-15	78.2							
LCS 160-479292/1-A	Lab Control Sample	84.6							
LCSD 160-479292/2-A	Lab Control Sample Dup	80.1							
MB 160-479292/15-A	Method Blank	92.1							

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)						
280-139176-1	PNMW-13	62.8	81.5						
280-139176-2	PNMW-17	67.1	82.6						
280-139176-3	EB	75.5	82.2						
280-139176-4	PNMW-15	78.2	84.1						
LCS 160-479294/1-A	Lab Control Sample	84.6	86.4						
LCSD 160-479294/2-A	Lab Control Sample Dup	80.1	84.5						
MB 160-479294/15-A	Method Blank	92.1	85.2						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-139176-2
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Shelby Turner

Authorized for release by:
9/23/2020 2:06:53 PM
Shelby Turner, Project Manager I
Shelby.Turner@Eurofinset.com

Designee for

Darlene Bandy, Project Manager I
(303)736-0188
Darlene.Bandy@Eurofinset.com

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-139176-2
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Qualifiers

Metals

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

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: 280-139176-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-139176-2

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 8/4/2020 3:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

Receipt Exceptions

The field sampler's name is not documented on the COC.

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): PNMW-15 (280-139176-4). The sample was logged for all methods listed on the COC per volume received.

Volume was not received for the requested Metals analysis for sample PNMW-17 (280-139176-2). The laboratory will properly preserve an aliquot of unpreserved volume to proceed with analysis.

All other analyses requested on the COC are reported under SDG 280-139176-1.

TOTAL MERCURY
Samples PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 09/22/2020.

Client requested method 7470A Mercury analysis outside of analysis holding times. As a result, the following samples were prepped and analyzed outside of sample holding time: PNMW-17 (280-139176-2), EB (280-139176-3) and PNMW-15 (280-139176-4).

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: 280-139176-2
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Client Sample ID: PNMW-17 — Lab Sample ID: 280-139176-2

No Detections.

Client Sample ID: EB — Lab Sample ID: 280-139176-3

No Detections.

Client Sample ID: PNMW-15 — Lab Sample ID: 280-139176-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-139176-2

Method	Method Description	Protocol	Laboratory
7470A	Mercury (CVAA)	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN

Protocol References:

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

Sample Summary

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

Job ID: 280-139176-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-139176-2	PNMW-17	Water	08/04/20 11:25	08/04/20 15:00	
280-139176-3	EB	Water	08/04/20 14:15	08/04/20 15:00	
280-139176-4	PNMW-15	Water	08/03/20 10:30	08/04/20 15:00	

Client Sample Results

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

Job ID: 280-139176-2

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-17
Date Collected: 08/04/20 11:25
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.20	0.13	ug/L		09/22/20 12:00	09/22/20 18:13	1

Client Sample ID: EB
Date Collected: 08/04/20 14:15
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.20	0.13	ug/L		09/22/20 12:00	09/22/20 18:15	1

Client Sample ID: PNMW-15
Date Collected: 08/03/20 10:30
Date Received: 08/04/20 15:00

Lab Sample ID: 280-139176-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.20	0.13	ug/L		09/22/20 12:00	09/22/20 18:17	1

QC Sample Results

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

Job ID: 280-139176-2

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-452404/1-A
Matrix: Water
Analysis Batch: 452574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 452404

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		09/22/20 12:00	09/22/20 17:19	1

Lab Sample ID: LCS 240-452404/2-A
Matrix: Water
Analysis Batch: 452574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 452404

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.43		ug/L		109	80 - 120

QC Association Summary

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

Job ID: 280-139176-2

Metals

Prep Batch: 452404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total/NA	Water	7470A	
280-139176-3	EB	Total/NA	Water	7470A	
280-139176-4	PNMW-15	Total/NA	Water	7470A	
MB 240-452404/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-452404/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 452574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-139176-2	PNMW-17	Total/NA	Water	7470A	452404
280-139176-3	EB	Total/NA	Water	7470A	452404
280-139176-4	PNMW-15	Total/NA	Water	7470A	452404
MB 240-452404/1-A	Method Blank	Total/NA	Water	7470A	452404
LCS 240-452404/2-A	Lab Control Sample	Total/NA	Water	7470A	452404

Lab Chronicle

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

Job ID: 280-139176-2

Client Sample ID: PNMW-17

Lab Sample ID: 280-139176-2
Date Collected: 08/04/20 11:25
Matrix: Water
Date Received: 08/04/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	452404	09/22/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			452574	09/22/20 18:13	SLD	TAL CAN

Client Sample ID: EB

Lab Sample ID: 280-139176-3
Date Collected: 08/04/20 14:15
Matrix: Water
Date Received: 08/04/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	452404	09/22/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			452574	09/22/20 18:15	SLD	TAL CAN

Client Sample ID: PNMW-15

Lab Sample ID: 280-139176-4
Date Collected: 08/03/20 10:30
Matrix: Water
Date Received: 08/04/20 15:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	452404	09/22/20 12:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			452574	09/22/20 18:17	SLD	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-139176-2
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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	07-31-20 *
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	06-30-21
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 renewal pending - accreditation/certification considered valid.

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

Chain of Custody Record

Denver #280

eurofins | Environment Testing America

Client Information	Sampler:	Lab PM: Bandy, Darlene F	Carrier Tracking No(s):	COC No: 280-101026-30221.1
Client Contact: Molly Reeves	Phone:	E-Mail: Darlene.Bandy@Eurofinset.com		Page: 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 - Pawnee	Project #: 28014378			
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	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		
PNMW-13	8-3-20	1225	G	Water	N	N			X	X	4	
PNMW-17	8-4-20	1125	G	Water	N	N	X	X	X	X	6	
EB	8-4-20	1415	G	Water	N	N	X	X	X	X	6	

280-139176 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
	8-4-20 1500	HDR		8-4-20 1500	EIA Pm
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: 3.7, IR10-01 JO 08/04/2020

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-139176-2

Login Number: 139176
List Number: 1
Creator: O'Hara, Jake F

List Source: Eurofins TestAmerica, Denver

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

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 280-142506-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Authorized for release by:
12/21/2020 9:02:52 AM

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

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-142506-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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
*	LCS or LCSD is outside acceptance limits.
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: 280-142506-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-142506-1

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 11/06/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 1.1º C, 1.1º C and 1.1º C.

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

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

TOTAL MERCURY- METHOD 7470A
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GENERAL CHEMISTRY- VARIOUS
Several samples required dilution prior to various analyses. The reporting limits have been adjusted accordingly.

The Total Suspended Solids sample duplicate analysis data associated with QC batches 280-516192, 280-516303, and 280-516040 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.

RADIUM-226 (GFPC)
Method PrecSep-21: Radium 226 Prep Batch 160-489170: 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
Methods 904.0, 9320, RA-06-RC: Radium-228 prep batch 160-489172:

Job ID: 280-142506-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

The LCS recovered at 73% for Ra-228. The limits in our LIMS system at 75-125% reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of 61-138% per method requirements. Although there is a qualifier, the LCS passes. No further action is required. (LCS 160-489172/1-A)

Method PrecSep-21: Radium 226 analytical Batch 160- 492108: Insufficient sample volume was available to perform a sample duplicate. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

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

Job ID: 280-142506-1

Client Sample ID: PNMW-17 — Lab Sample ID: 280-142506-1

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	0.068		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	210		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00032	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0046		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0012	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.015		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.039		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	250		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.17	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	400		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	7.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-18 — Lab Sample ID: 280-142506-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.068		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	290		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00040	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0016	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0012	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0029	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.039		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	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	350		30	10	mg/L	10		9056A	Total/NA
Sulfate	810		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2100		25	12	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-19 — Lab Sample ID: 280-142506-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.027	J	0.10	0.023	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-19 (Continued) — Lab Sample ID: 280-142506-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	67		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0015	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0019	J	0.0050	0.00089	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	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	20		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.30	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	33		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	380		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-20 — Lab Sample ID: 280-142506-4

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
Barium	0.018		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	460		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00063	J	0.0010	0.00020	mg/L	1		6020A	Total Recoverable
Cobalt	0.00069	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0021		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Lead	0.0020		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0090		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	7.7	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	1300		30	10	mg/L	10		9056A	Total/NA
Fluoride	9.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3700		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	8800		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	30		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-21 — Lab Sample ID: 280-142506-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.14		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.054		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-21 (Continued) — Lab Sample ID: 280-142506-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	190		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	0.0026		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0041	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00052	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0030	J	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	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	240		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.26	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	620		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1700		50	24	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	33		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-22 — Lab Sample ID: 280-142506-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.14		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.064		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	320		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00036	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0028		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	0.0059		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.060		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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	210		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.26	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	930		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-23 — Lab Sample ID: 280-142506-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.026		0.0050	0.0022	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-23 (Continued) — Lab Sample ID: 280-142506-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	320		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00036	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0024		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Selenium	0.0027	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.044		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	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	1400		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2400		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-21-EB — Lab Sample ID: 280-142506-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	22		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-22-DUP — Lab Sample ID: 280-142506-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.14		0.10	0.023	mg/L	1		6010C	Total Recoverable
Barium	0.061		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	320		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00035	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0055		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0035	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0057		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.059		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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	200		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.25	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	900		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		25	12	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-142506-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-142506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142506-1	PNMW-17	Ground Water	11/03/20 14:40	11/06/20 12:15	
280-142506-2	PNMW-18	Ground Water	11/05/20 12:50	11/06/20 12:15	
280-142506-3	PNMW-19	Ground Water	11/05/20 15:46	11/06/20 12:15	
280-142506-4	PNMW-20	Ground Water	11/05/20 19:07	11/06/20 12:15	
280-142506-5	PNMW-21	Ground Water	11/04/20 16:40	11/06/20 12:15	
280-142506-6	PNMW-22	Ground Water	11/04/20 12:16	11/06/20 12:15	
280-142506-7	PNMW-23	Ground Water	11/03/20 17:25	11/06/20 12:15	
280-142506-8	PNMW-21-EB	Ground Water	11/04/20 17:30	11/06/20 12:15	
280-142506-9	PNMW-22-DUP	Ground Water	11/04/20 12:16	11/06/20 12:15	

Client Sample Results

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

Job ID: 280-142506-1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142506-1**
Date Collected: 11/03/20 14:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.21		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 20:42	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-142506-2**
Date Collected: 11/05/20 12:50 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 20:47	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-142506-3**
Date Collected: 11/05/20 15:46 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.027	J	0.10	0.023	mg/L		11/11/20 14:00	11/12/20 20:51	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-142506-4**
Date Collected: 11/05/20 19:07 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 20:56	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142506-5**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.14		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:00	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-142506-6**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.14		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:13	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-142506-7**
Date Collected: 11/03/20 17:25 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:17	1

Client Sample ID: PNMW-21-EB — **Lab Sample ID: 280-142506-8**
Date Collected: 11/04/20 17:30 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:22	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-142506-9**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.14		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:26	1

Client Sample Results

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

Job ID: 280-142506-1

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

Client Sample ID: PNMW-17
Date Collected: 11/03/20 14:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-1
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:03	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:03	1
Barium	**0.068**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:03	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:03	1
Calcium	**210**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:14	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:03	1
Cobalt	**0.00032**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:03	1
Chromium	**0.0046**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:03	1
Molybdenum	**0.0012**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:03	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:03	1
Selenium	**0.015**		0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:03	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:03	1
Lithium	**0.039**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:03	1

Client Sample ID: PNMW-18
Date Collected: 11/05/20 12:50
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-2
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:06	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:06	1
Barium	**0.068**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:06	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:06	1
Calcium	**290**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:22	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:06	1
Cobalt	**0.00040**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:06	1
Chromium	**0.0016**	**J**	0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:06	1
Molybdenum	**0.0012**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:06	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:06	1
Selenium	**0.0029**	**J**	0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:06	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:06	1
Lithium	**0.039**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:06	1

Client Sample ID: PNMW-19
Date Collected: 11/05/20 15:46
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-3
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:08	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:08	1
Barium	**0.23**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:08	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:08	1
Calcium	**67**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:24	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:08	1
Cobalt	ND		0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:08	1
Chromium	**0.0015**	**J**	0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:08	1
Molybdenum	**0.0015**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:08	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:08	1
Selenium	**0.0019**	**J**	0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:08	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:08	1
Lithium	**0.027**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:08	1

Client Sample Results

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

Job ID: 280-142506-1

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

Client Sample ID: PNMW-20
Date Collected: 11/05/20 19:07
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:11	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:11	1
Barium	**0.018**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:11	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:11	1
Calcium	**460**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:27	1
Cadmium	**0.00063**	**J**	0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:11	1
Cobalt	**0.00069**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:11	1
Chromium	**0.0021**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:11	1
Molybdenum	ND		0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:11	1
Lead	**0.0020**		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:11	1
Selenium	**0.0090**		0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:11	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:11	1
Lithium	**0.075**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:11	1

Client Sample ID: PNMW-21
Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:13	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:13	1
Barium	**0.054**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:13	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:13	1
Calcium	**190**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:29	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:13	1
Cobalt	**0.00043**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:13	1
Chromium	**0.0026**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:13	1
Molybdenum	**0.0041**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:13	1
Lead	**0.00052**	**J**	0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:13	1
Selenium	**0.0030**	**J**	0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:13	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:13	1
Lithium	**0.054**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:13	1

Client Sample ID: PNMW-22
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-6
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:21	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:21	1
Barium	**0.064**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:21	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:21	1
Calcium	**320**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:32	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:21	1
Cobalt	**0.00036**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:21	1
Chromium	**0.0028**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:21	1
Molybdenum	**0.0033**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:21	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:21	1
Selenium	**0.0059**		0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:21	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:21	1
Lithium	**0.060**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:21	1

Client Sample Results

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

Job ID: 280-142506-1

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

Client Sample ID: PNMW-23
Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-7
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:23	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:23	1
Barium	**0.026**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:23	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:23	1
Calcium	**320**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:34	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:23	1
Cobalt	**0.00036**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:23	1
Chromium	**0.0024**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:23	1
Molybdenum	ND		0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:23	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:23	1
Selenium	**0.0027**	**J**	0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:23	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:23	1
Lithium	**0.044**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:23	1

Client Sample ID: PNMW-21-EB
Date Collected: 11/04/20 17:30
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-8
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:26	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:26	1
Barium	ND		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:26	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:26	1
Calcium	ND		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:37	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:26	1
Cobalt	ND		0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:26	1
Chromium	ND		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:26	1
Molybdenum	ND		0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:26	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:26	1
Selenium	ND		0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:26	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:26	1
Lithium	ND		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:26	1

Client Sample ID: PNMW-22-DUP
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-9
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/13/20 00:29	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/13/20 00:29	1
Barium	**0.061**		0.0050	0.0022	mg/L		11/11/20 14:00	11/13/20 00:29	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/13/20 00:29	1
Calcium	**320**		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:39	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:29	1
Cobalt	**0.00035**	**J**	0.0010	0.00019	mg/L		11/11/20 14:00	11/13/20 00:29	1
Chromium	**0.0055**		0.0020	0.00098	mg/L		11/11/20 14:00	11/13/20 00:29	1
Molybdenum	**0.0035**	**J**	0.010	0.0011	mg/L		11/11/20 14:00	11/13/20 00:29	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/13/20 00:29	1
Selenium	**0.0057**		0.0050	0.00089	mg/L		11/11/20 14:00	11/13/20 00:29	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/13/20 00:29	1
Lithium	**0.059**		0.0080	0.0017	mg/L		11/11/20 14:00	11/13/20 00:29	1

Client Sample Results

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

Job ID: 280-142506-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142506-1**
Date Collected: 11/03/20 14:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:38	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-142506-2**
Date Collected: 11/05/20 12:50 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:40	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-142506-3**
Date Collected: 11/05/20 15:46 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:42	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-142506-4**
Date Collected: 11/05/20 19:07 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:49	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142506-5**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:51	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-142506-6**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:53	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-142506-7**
Date Collected: 11/03/20 17:25 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:55	1

Client Sample ID: PNMW-21-EB — **Lab Sample ID: 280-142506-8**
Date Collected: 11/04/20 17:30 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:57	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-142506-9**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:59	1

General Chemistry

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142506-1**
Date Collected: 11/03/20 14:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			11/25/20 09:45	1
Temperature	21.6	HF	1.0	1.0	Degrees C			11/25/20 09:45	1
Chloride	250		15	5.1	mg/L			11/28/20 01:56	5
Fluoride	0.17	J	0.50	0.17	mg/L			11/28/20 01:39	1
Sulfate	400		25	5.2	mg/L			11/28/20 01:56	5
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L			11/10/20 17:12	1
Total Suspended Solids	7.6		4.0	1.1	mg/L			11/09/20 16:38	1

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-142506-2**
Date Collected: 11/05/20 12:50 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			11/25/20 09:52	1
Temperature	20.1	HF	1.0	1.0	Degrees C			11/25/20 09:52	1
Chloride	350		30	10	mg/L			11/28/20 01:23	10
Fluoride	ND		0.50	0.17	mg/L			11/28/20 01:06	1
Sulfate	810		50	10	mg/L			11/28/20 01:23	10
Total Dissolved Solids (TDS)	2100		25	12	mg/L			11/12/20 21:53	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			11/11/20 08:00	1

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-142506-3**
Date Collected: 11/05/20 15:46 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

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			11/25/20 09:56	1
Temperature	20.2	HF	1.0	1.0	Degrees C			11/25/20 09:56	1
Chloride	20		3.0	1.0	mg/L			11/28/20 10:49	1
Fluoride	0.30	J	0.50	0.17	mg/L			11/28/20 10:49	1
Sulfate	33		5.0	1.0	mg/L			11/28/20 10:49	1
Total Dissolved Solids (TDS)	380		10	4.7	mg/L			11/11/20 18:57	1
Total Suspended Solids	6.8		4.0	1.1	mg/L			11/11/20 08:00	1

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-142506-4**
Date Collected: 11/05/20 19:07 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			11/25/20 10:02	1
Temperature	20.9	HF	1.0	1.0	Degrees C			11/25/20 10:02	1
Chloride	1300		30	10	mg/L			11/28/20 02:28	10
Fluoride	9.7		0.50	0.17	mg/L			11/28/20 02:12	1
Sulfate	3700		500	100	mg/L			11/28/20 11:55	100
Total Dissolved Solids (TDS)	8800		100	47	mg/L			11/11/20 18:57	1
Total Suspended Solids	30		4.0	1.1	mg/L			11/11/20 08:00	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142506-5**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			11/25/20 10:06	1
Temperature	21.3	HF	1.0	1.0	Degrees C			11/25/20 10:06	1

General Chemistry (Continued)

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142506-5**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	240		15	5.1	mg/L			11/28/20 03:01	5
Fluoride	0.26	J	0.50	0.17	mg/L			11/28/20 02:45	1
Sulfate	620		25	5.2	mg/L			11/28/20 03:01	5
Total Dissolved Solids (TDS)	1700		50	24	mg/L			11/10/20 17:12	1
Total Suspended Solids	33		4.0	1.1	mg/L			11/11/20 06:14	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-142506-6**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

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			11/25/20 10:10	1
Temperature	20.8	HF	1.0	1.0	Degrees C			11/25/20 10:10	1
Chloride	210		30	10	mg/L			11/28/20 03:34	10
Fluoride	0.26	J	0.50	0.17	mg/L			11/28/20 03:18	1
Sulfate	930		50	10	mg/L			11/28/20 03:34	10
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L			11/10/20 17:12	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			11/11/20 06:14	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-142506-7**
Date Collected: 11/03/20 17:25 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

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			11/25/20 10:14	1
Temperature	19.9	HF	1.0	1.0	Degrees C			11/25/20 10:14	1
Chloride	110		3.0	1.0	mg/L			11/28/20 04:23	1
Fluoride	ND		0.50	0.17	mg/L			11/28/20 04:23	1
Sulfate	1400		50	10	mg/L			11/28/20 08:55	10
Total Dissolved Solids (TDS)	2400		20	9.4	mg/L			11/10/20 17:12	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			11/09/20 16:38	1

Client Sample ID: PNMW-21-EB — **Lab Sample ID: 280-142506-8**
Date Collected: 11/04/20 17:30 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			11/25/20 18:18	1
Temperature	20.4	HF	1.0	1.0	Degrees C			11/25/20 18:18	1
Chloride	ND		3.0	1.0	mg/L			11/28/20 09:11	1
Fluoride	ND		0.50	0.17	mg/L			11/28/20 09:11	1
Sulfate	ND		5.0	1.0	mg/L			11/28/20 09:11	1
Total Dissolved Solids (TDS)	22		10	4.7	mg/L			11/11/20 18:57	1
Total Suspended Solids	ND		4.0	1.1	mg/L			11/11/20 06:14	1

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-142506-9**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

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			11/25/20 10:26	1
Temperature	20.8	HF	1.0	1.0	Degrees C			11/25/20 10:26	1
Chloride	200		30	10	mg/L			11/28/20 09:44	10
Fluoride	0.25	J	0.50	0.17	mg/L			11/28/20 09:27	1

General Chemistry (Continued)

Client Sample ID: PNMW-22-DUP — **Lab Sample ID: 280-142506-9**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	900		50	10	mg/L			11/28/20 09:44	10
Total Dissolved Solids (TDS)	2000		25	12	mg/L			11/11/20 18:57	1
Total Suspended Solids	4.8		4.0	1.1	mg/L			11/10/20 08:10	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142506-1**
Date Collected: 11/03/20 14:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.224	U	0.212	0.213	1.00	0.331	pCi/L	11/16/20 09:39	12/17/20 05:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.5*		*40 - 110*	*11/16/20 09:39*	*12/17/20 05:58*	*1*

Client Sample ID: PNMW-18 — **Lab Sample ID: 280-142506-2**
Date Collected: 11/05/20 12:50 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.185	U	0.180	0.180	1.00	0.280	pCi/L	11/16/20 09:39	12/17/20 05:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.1*		*40 - 110*	*11/16/20 09:39*	*12/17/20 05:58*	*1*

Client Sample ID: PNMW-19 — **Lab Sample ID: 280-142506-3**
Date Collected: 11/05/20 15:46 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.217	U	0.183	0.184	1.00	0.271	pCi/L	11/16/20 09:39	12/17/20 05:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.5*		*40 - 110*	*11/16/20 09:39*	*12/17/20 05:58*	*1*

Client Sample ID: PNMW-20 — **Lab Sample ID: 280-142506-4**
Date Collected: 11/05/20 19:07 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.111	U	0.183	0.183	1.00	0.316	pCi/L	11/16/20 09:39	12/17/20 05:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*11/16/20 09:39*	*12/17/20 05:58*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-21
Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.208	U	0.186	0.187	1.00	0.276	pCi/L	11/16/20 09:39	12/17/20 06:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.2*		*40 - 110*	*11/16/20 09:39*	*12/17/20 06:00*	*1*

Client Sample ID: PNMW-22
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-6
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.182	U	0.183	0.184	1.00	0.288	pCi/L	11/16/20 09:39	12/17/20 06:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.2*		*40 - 110*	*11/16/20 09:39*	*12/17/20 06:00*	*1*

Client Sample ID: PNMW-23
Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-7
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0224	U	0.103	0.103	1.00	0.233	pCi/L	11/16/20 09:39	12/17/20 06:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.7*		*40 - 110*	*11/16/20 09:39*	*12/17/20 06:00*	*1*

Client Sample ID: PNMW-21-EB
Date Collected: 11/04/20 17:30
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-8
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0126	U	0.107	0.107	1.00	0.236	pCi/L	11/16/20 09:39	12/17/20 06:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.8*		*40 - 110*	*11/16/20 09:39*	*12/17/20 06:01*	*1*

Client Sample ID: PNMW-22-DUP
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-9
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.181	U	0.161	0.162	1.00	0.241	pCi/L	11/16/20 09:39	12/17/20 06:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*11/16/20 09:39*	*12/17/20 06:01*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-17
Date Collected: 11/03/20 14:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-1
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.150	U *	0.242	0.242	1.00	0.408	pCi/L	11/16/20 10:00	12/16/20 13:17	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.5*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*
Y Carrier	*99.1*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*

Client Sample ID: PNMW-18
Date Collected: 11/05/20 12:50
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-2
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0810	U *	0.246	0.246	1.00	0.425	pCi/L	11/16/20 10:00	12/16/20 13:17	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.1*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*
Y Carrier	*99.4*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*

Client Sample ID: PNMW-19
Date Collected: 11/05/20 15:46
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-3
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.109	U *	0.245	0.245	1.00	0.418	pCi/L	11/16/20 10:00	12/16/20 13:17	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.5*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*
Y Carrier	*101*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:17*	*1*

Client Sample ID: PNMW-20
Date Collected: 11/05/20 19:07
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-4
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.392**	*	0.234	0.237	1.00	0.357	pCi/L	11/16/20 10:00	12/16/20 13:18	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.8*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:18*	*1*
Y Carrier	*101*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:18*	*1*

Client Sample ID: PNMW-21
Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.449**	*	0.236	0.240	1.00	0.349	pCi/L	11/16/20 10:00	12/16/20 13:18	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110	11/16/20 10:00	12/16/20 13:18	1
Y Carrier	101		40 - 110	11/16/20 10:00	12/16/20 13:18	1

Client Sample ID: PNMW-22
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-6
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.339	U *	0.258	0.260	1.00	0.406	pCi/L	11/16/20 10:00	12/16/20 13:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.2		40 - 110	11/16/20 10:00	12/16/20 13:18	1
Y Carrier	96.4		40 - 110	11/16/20 10:00	12/16/20 13:18	1

Client Sample ID: PNMW-23
Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-7
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.476**	*	0.241	0.245	1.00	0.357	pCi/L	11/16/20 10:00	12/16/20 13:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110	11/16/20 10:00	12/16/20 13:18	1
Y Carrier	100		40 - 110	11/16/20 10:00	12/16/20 13:18	1

Client Sample ID: PNMW-21-EB
Date Collected: 11/04/20 17:30
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-8
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.204	U *	0.184	0.185	1.00	0.373	pCi/L	11/16/20 10:00	12/16/20 13:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		40 - 110	11/16/20 10:00	12/16/20 13:18	1
Y Carrier	98.7		40 - 110	11/16/20 10:00	12/16/20 13:18	1

Client Sample ID: PNMW-22-DUP
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-9
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0945	U *	0.195	0.195	1.00	0.333	pCi/L	11/16/20 10:00	12/16/20 13:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110	11/16/20 10:00	12/16/20 13:18	1
Y Carrier	102		40 - 110	11/16/20 10:00	12/16/20 13:18	1

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

Client Sample ID: PNMW-17
Date Collected: 11/03/20 14:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-1
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.374	U	0.322	0.322	5.00	0.408	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-18
Date Collected: 11/05/20 12:50
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-2
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.266	U	0.305	0.305	5.00	0.425	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-19
Date Collected: 11/05/20 15:46
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-3
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.326	U	0.306	0.306	5.00	0.418	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-20
Date Collected: 11/05/20 19:07
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-4
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.503**		0.297	0.299	5.00	0.357	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-21
Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.656**		0.300	0.304	5.00	0.349	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-22
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-6
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.521**		0.316	0.319	5.00	0.406	pCi/L		12/19/20 19:49	1

Client Sample Results

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

Job ID: 280-142506-1

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

Client Sample ID: PNMW-23
Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-7
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.453**		0.262	0.266	5.00	0.357	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-21-EB
Date Collected: 11/04/20 17:30
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-8
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.216	U	0.213	0.214	5.00	0.373	pCi/L		12/19/20 19:49	1

Client Sample ID: PNMW-22-DUP
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-9
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.275	U	0.253	0.254	5.00	0.333	pCi/L		12/19/20 19:49	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-460378/1-A
Matrix: Water
Analysis Batch: 460802

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 460378

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 19:18	1

Lab Sample ID: LCS 240-460378/2-A
Matrix: Water
Analysis Batch: 460802

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 460378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.979		mg/L		98	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-460378/1-A
Matrix: Water
Analysis Batch: 460838

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 460378

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		11/11/20 14:00	11/12/20 23:21	1
Arsenic	ND		0.0050	0.00075	mg/L		11/11/20 14:00	11/12/20 23:21	1
Barium	ND		0.0050	0.0022	mg/L		11/11/20 14:00	11/12/20 23:21	1
Beryllium	ND		0.0010	0.00031	mg/L		11/11/20 14:00	11/12/20 23:21	1
Calcium	ND		1.0	0.58	mg/L		11/11/20 14:00	11/12/20 23:21	1
Cadmium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/12/20 23:21	1
Cobalt	ND		0.0010	0.00019	mg/L		11/11/20 14:00	11/12/20 23:21	1
Chromium	ND		0.0020	0.00098	mg/L		11/11/20 14:00	11/12/20 23:21	1
Molybdenum	ND		0.010	0.0011	mg/L		11/11/20 14:00	11/12/20 23:21	1
Lead	ND		0.0010	0.00045	mg/L		11/11/20 14:00	11/12/20 23:21	1
Selenium	ND		0.0050	0.00089	mg/L		11/11/20 14:00	11/12/20 23:21	1
Thallium	ND		0.0010	0.00020	mg/L		11/11/20 14:00	11/12/20 23:21	1
Lithium	ND		0.0080	0.0017	mg/L		11/11/20 14:00	11/12/20 23:21	1

Lab Sample ID: LCS 240-460378/3-A
Matrix: Water
Analysis Batch: 460838

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 460378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0942		mg/L		94	80 - 120
Arsenic	1.00	0.983		mg/L		98	80 - 120
Barium	1.00	0.988		mg/L		99	80 - 120
Beryllium	0.500	0.497		mg/L		99	80 - 120
Calcium	25.0	26.3		mg/L		105	80 - 120
Cadmium	0.500	0.478		mg/L		96	80 - 120
Cobalt	0.500	0.504		mg/L		101	80 - 120
Chromium	0.500	0.495		mg/L		99	80 - 120
Molybdenum	0.500	0.482		mg/L		96	80 - 120
Lead	0.500	0.499		mg/L		100	80 - 120
Selenium	1.00	0.991		mg/L		99	80 - 120
Thallium	1.00	0.938		mg/L		94	80 - 120
Lithium	0.500	0.502		mg/L		100	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-460382/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 460812 — **Prep Batch: 460382**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		11/11/20 14:00	11/12/20 13:07	1

Lab Sample ID: LCS 240-460382/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 460812 — **Prep Batch: 460382**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.06		ug/L		101	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-518178/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518178

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: 280-142506-1 DU — **Client Sample ID: PNMW-17**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518178

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.7	HF	7.5		SU		2	5
Temperature	21.6	HF	20.5		Degrees C		5	10

Lab Sample ID: LCS 280-518355/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518355

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-518332/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/27/20 12:10	1
Fluoride	ND		0.50	0.17	mg/L			11/27/20 12:10	1
Sulfate	ND		5.0	1.0	mg/L			11/27/20 12:10	1

Lab Sample ID: MB 280-518332/62 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/28/20 10:33	1

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

Lab Sample ID: MB 280-518332/62
Matrix: Water
Analysis Batch: 518332

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			11/28/20 10:33	1
Sulfate	ND		5.0	1.0	mg/L			11/28/20 10:33	1

Lab Sample ID: LCS 280-518332/4
Matrix: Water
Analysis Batch: 518332

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	4.91		mg/L		98	90 - 110
Sulfate	100	95.8		mg/L		96	90 - 110

Lab Sample ID: LCS 280-518332/60
Matrix: Water
Analysis Batch: 518332

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.0		mg/L		95	90 - 110
Fluoride	5.00	4.85		mg/L		97	90 - 110
Sulfate	100	93.6		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-518332/5
Matrix: Water
Analysis Batch: 518332

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	97.2		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.92		mg/L		98	90 - 110	0	10
Sulfate	100	94.2		mg/L		94	90 - 110	2	10

Lab Sample ID: LCSD 280-518332/61
Matrix: Water
Analysis Batch: 518332

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	4.85		mg/L		97	90 - 110	0	10
Sulfate	100	93.5		mg/L		93	90 - 110	0	10

Lab Sample ID: MRL 280-518332/3
Matrix: Water
Analysis Batch: 518332

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	4.07		mg/L		81	50 - 150
Fluoride	0.500	0.471	J	mg/L		94	50 - 150
Sulfate	5.00	4.33	J	mg/L		87	50 - 150

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

Lab Sample ID: 280-142506-3 MS — **Client Sample ID: PNMW-19**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20		50.0	73.0		mg/L		105	80 - 120
Fluoride	0.30	J	5.00	5.26		mg/L		99	80 - 120
Sulfate	33		50.0	84.5		mg/L		104	80 - 120

Lab Sample ID: 280-142506-3 MSD — **Client Sample ID: PNMW-19**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	20		50.0	72.1		mg/L		104	80 - 120	1	20
Fluoride	0.30	J	5.00	5.11		mg/L		96	80 - 120	3	20
Sulfate	33		50.0	83.8		mg/L		102	80 - 120	1	20

Lab Sample ID: 280-142506-3 DU — **Client Sample ID: PNMW-19**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	20		20.2		mg/L		0.5	15
Fluoride	0.30	J	0.301	J	mg/L		0.2	15
Sulfate	33		32.7		mg/L		0.08	15

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

Lab Sample ID: MB 280-516142/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			11/10/20 17:12	1

Lab Sample ID: LCS 280-516142/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	522		mg/L		104	93 - 110

Lab Sample ID: MB 280-516348/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			11/11/20 18:57	1

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

Lab Sample ID: LCS 280-516348/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516348

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	510		mg/L		102	93 - 110

Lab Sample ID: MB 280-516542/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			11/12/20 21:53	1

Lab Sample ID: LCS 280-516542/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	530		mg/L		106	93 - 110

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

Lab Sample ID: MB 280-515988/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 515988

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/09/20 16:38	1

Lab Sample ID: LCS 280-515988/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 515988

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	104		mg/L		104	79 - 114

Lab Sample ID: LCSD 280-515988/2 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 515988

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	100	94.8		mg/L		95	79 - 114	9	20

Lab Sample ID: MB 280-516040/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/10/20 08:10	1

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

Lab Sample ID: LCS 280-516040/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	92.0		mg/L		92	79 - 114

Lab Sample ID: LCSD 280-516040/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516040

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	79 - 114	4	20

Lab Sample ID: MB 280-516192/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516192

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/11/20 06:14	1

Lab Sample ID: LCS 280-516192/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516192

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

Lab Sample ID: MB 280-516203/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516203

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/11/20 08:00	1

Lab Sample ID: LCS 280-516203/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516203

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	99.0		mg/L		99	79 - 114

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-489170/22-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 492301 — **Prep Batch: 489170**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01864	U	0.117	0.117	1.00	0.235	pCi/L	11/16/20 09:39	12/17/20 11:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*11/16/20 09:39*	*12/17/20 11:14*	*1*

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

Lab Sample ID: LCS 160-489170/1-A
Matrix: Water
Analysis Batch: 492452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489170

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.978		1.15	1.00	0.205	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*

Lab Sample ID: LCSD 160-489170/2-A
Matrix: Water
Analysis Batch: 492452

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489170

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.973		1.15	1.00	0.242	pCi/L	88	75 - 125	0	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*84.5*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-489172/22-A
Matrix: Water
Analysis Batch: 492138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489172

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.09808	U	0.210	0.210	1.00	0.359	pCi/L	11/16/20 10:00	12/16/20 13:21	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:21*	*1*
Y Carrier	*105*		*40 - 110*	*11/16/20 10:00*	*12/16/20 13:21*	*1*

Lab Sample ID: LCS 160-489172/1-A
Matrix: Water
Analysis Batch: 492108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489172

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			7.58	5.500	*	0.744	1.00	0.418	pCi/L	73	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*
Y Carrier	*102*		*40 - 110*

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

Lab Sample ID: LCSD 160-489172/2-A
Matrix: Water
Analysis Batch: 492108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489172

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			7.58	5.874		0.767	1.00	0.396	pCi/L	78	75 - 125	0.25	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*84.5*		*40 - 110*
Y Carrier	*102*		*40 - 110*

QC Association Summary

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

Job ID: 280-142506-1

Metals

Prep Batch: 460378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total Recoverable	Ground Water	3005A	
280-142506-2	PNMW-18	Total Recoverable	Ground Water	3005A	
280-142506-3	PNMW-19	Total Recoverable	Ground Water	3005A	
280-142506-4	PNMW-20	Total Recoverable	Ground Water	3005A	
280-142506-5	PNMW-21	Total Recoverable	Ground Water	3005A	
280-142506-6	PNMW-22	Total Recoverable	Ground Water	3005A	
280-142506-7	PNMW-23	Total Recoverable	Ground Water	3005A	
280-142506-8	PNMW-21-EB	Total Recoverable	Ground Water	3005A	
280-142506-9	PNMW-22-DUP	Total Recoverable	Ground Water	3005A	
MB 240-460378/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-460378/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-460378/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 460382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	7470A	
280-142506-2	PNMW-18	Total/NA	Ground Water	7470A	
280-142506-3	PNMW-19	Total/NA	Ground Water	7470A	
280-142506-4	PNMW-20	Total/NA	Ground Water	7470A	
280-142506-5	PNMW-21	Total/NA	Ground Water	7470A	
280-142506-6	PNMW-22	Total/NA	Ground Water	7470A	
280-142506-7	PNMW-23	Total/NA	Ground Water	7470A	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	7470A	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	7470A	
MB 240-460382/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-460382/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 460802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total Recoverable	Ground Water	6010C	460378
280-142506-2	PNMW-18	Total Recoverable	Ground Water	6010C	460378
280-142506-3	PNMW-19	Total Recoverable	Ground Water	6010C	460378
280-142506-4	PNMW-20	Total Recoverable	Ground Water	6010C	460378
280-142506-5	PNMW-21	Total Recoverable	Ground Water	6010C	460378
280-142506-6	PNMW-22	Total Recoverable	Ground Water	6010C	460378
280-142506-7	PNMW-23	Total Recoverable	Ground Water	6010C	460378
280-142506-8	PNMW-21-EB	Total Recoverable	Ground Water	6010C	460378
280-142506-9	PNMW-22-DUP	Total Recoverable	Ground Water	6010C	460378
MB 240-460378/1-A	Method Blank	Total Recoverable	Water	6010C	460378
LCS 240-460378/2-A	Lab Control Sample	Total Recoverable	Water	6010C	460378

Analysis Batch: 460812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	7470A	460382
280-142506-2	PNMW-18	Total/NA	Ground Water	7470A	460382
280-142506-3	PNMW-19	Total/NA	Ground Water	7470A	460382
280-142506-4	PNMW-20	Total/NA	Ground Water	7470A	460382
280-142506-5	PNMW-21	Total/NA	Ground Water	7470A	460382
280-142506-6	PNMW-22	Total/NA	Ground Water	7470A	460382
280-142506-7	PNMW-23	Total/NA	Ground Water	7470A	460382
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	7470A	460382

Metals (Continued)

Analysis Batch: 460812 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	7470A	460382
MB 240-460382/1-A	Method Blank	Total/NA	Water	7470A	460382
LCS 240-460382/2-A	Lab Control Sample	Total/NA	Water	7470A	460382

Analysis Batch: 460838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total Recoverable	Ground Water	6020A	460378
280-142506-2	PNMW-18	Total Recoverable	Ground Water	6020A	460378
280-142506-3	PNMW-19	Total Recoverable	Ground Water	6020A	460378
280-142506-4	PNMW-20	Total Recoverable	Ground Water	6020A	460378
280-142506-5	PNMW-21	Total Recoverable	Ground Water	6020A	460378
280-142506-6	PNMW-22	Total Recoverable	Ground Water	6020A	460378
280-142506-7	PNMW-23	Total Recoverable	Ground Water	6020A	460378
280-142506-8	PNMW-21-EB	Total Recoverable	Ground Water	6020A	460378
280-142506-9	PNMW-22-DUP	Total Recoverable	Ground Water	6020A	460378
MB 240-460378/1-A	Method Blank	Total Recoverable	Water	6020A	460378
LCS 240-460378/3-A	Lab Control Sample	Total Recoverable	Water	6020A	460378

Analysis Batch: 460981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total Recoverable	Ground Water	6020A	460378
280-142506-2	PNMW-18	Total Recoverable	Ground Water	6020A	460378
280-142506-3	PNMW-19	Total Recoverable	Ground Water	6020A	460378
280-142506-4	PNMW-20	Total Recoverable	Ground Water	6020A	460378
280-142506-5	PNMW-21	Total Recoverable	Ground Water	6020A	460378
280-142506-6	PNMW-22	Total Recoverable	Ground Water	6020A	460378
280-142506-7	PNMW-23	Total Recoverable	Ground Water	6020A	460378
280-142506-8	PNMW-21-EB	Total Recoverable	Ground Water	6020A	460378
280-142506-9	PNMW-22-DUP	Total Recoverable	Ground Water	6020A	460378

General Chemistry

Analysis Batch: 515988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	SM 2540D	
280-142506-7	PNMW-23	Total/NA	Ground Water	SM 2540D	
MB 280-515988/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-515988/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-515988/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 516040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	SM 2540D	
MB 280-516040/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-516040/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-516040/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 516142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	SM 2540C	
280-142506-5	PNMW-21	Total/NA	Ground Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 516142 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-6	PNMW-22	Total/NA	Ground Water	SM 2540C	
280-142506-7	PNMW-23	Total/NA	Ground Water	SM 2540C	
MB 280-516142/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-516142/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 516192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-5	PNMW-21	Total/NA	Ground Water	SM 2540D	
280-142506-6	PNMW-22	Total/NA	Ground Water	SM 2540D	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	SM 2540D	
MB 280-516192/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-516192/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 516203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-2	PNMW-18	Total/NA	Ground Water	SM 2540D	
280-142506-3	PNMW-19	Total/NA	Ground Water	SM 2540D	
280-142506-4	PNMW-20	Total/NA	Ground Water	SM 2540D	
MB 280-516203/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-516203/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 516348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-3	PNMW-19	Total/NA	Ground Water	SM 2540C	
280-142506-4	PNMW-20	Total/NA	Ground Water	SM 2540C	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	SM 2540C	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	SM 2540C	
MB 280-516348/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-516348/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 516542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-2	PNMW-18	Total/NA	Ground Water	SM 2540C	
MB 280-516542/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-516542/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 518178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	9040B	
280-142506-2	PNMW-18	Total/NA	Ground Water	9040B	
280-142506-3	PNMW-19	Total/NA	Ground Water	9040B	
280-142506-4	PNMW-20	Total/NA	Ground Water	9040B	
280-142506-5	PNMW-21	Total/NA	Ground Water	9040B	
280-142506-6	PNMW-22	Total/NA	Ground Water	9040B	
280-142506-7	PNMW-23	Total/NA	Ground Water	9040B	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	9040B	
LCS 280-518178/4	Lab Control Sample	Total/NA	Water	9040B	
280-142506-1 DU	PNMW-17	Total/NA	Ground Water	9040B	

QC Association Summary

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

Job ID: 280-142506-1

General Chemistry

Analysis Batch: 518332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	9056A	
280-142506-1	PNMW-17	Total/NA	Ground Water	9056A	
280-142506-2	PNMW-18	Total/NA	Ground Water	9056A	
280-142506-2	PNMW-18	Total/NA	Ground Water	9056A	
280-142506-3	PNMW-19	Total/NA	Ground Water	9056A	
280-142506-4	PNMW-20	Total/NA	Ground Water	9056A	
280-142506-4	PNMW-20	Total/NA	Ground Water	9056A	
280-142506-4	PNMW-20	Total/NA	Ground Water	9056A	
280-142506-5	PNMW-21	Total/NA	Ground Water	9056A	
280-142506-5	PNMW-21	Total/NA	Ground Water	9056A	
280-142506-6	PNMW-22	Total/NA	Ground Water	9056A	
280-142506-6	PNMW-22	Total/NA	Ground Water	9056A	
280-142506-7	PNMW-23	Total/NA	Ground Water	9056A	
280-142506-7	PNMW-23	Total/NA	Ground Water	9056A	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	9056A	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	9056A	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	9056A	
MB 280-518332/6	Method Blank	Total/NA	Water	9056A	
MB 280-518332/62	Method Blank	Total/NA	Water	9056A	
LCS 280-518332/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-518332/60	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-518332/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-518332/61	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-518332/3	Lab Control Sample	Total/NA	Water	9056A	
280-142506-3 MS	PNMW-19	Total/NA	Ground Water	9056A	
280-142506-3 MSD	PNMW-19	Total/NA	Ground Water	9056A	
280-142506-3 DU	PNMW-19	Total/NA	Ground Water	9056A	

Analysis Batch: 518355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	9040B	
LCS 280-518355/4	Lab Control Sample	Total/NA	Water	9040B	

Rad

Prep Batch: 489170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	PrecSep-21	
280-142506-2	PNMW-18	Total/NA	Ground Water	PrecSep-21	
280-142506-3	PNMW-19	Total/NA	Ground Water	PrecSep-21	
280-142506-4	PNMW-20	Total/NA	Ground Water	PrecSep-21	
280-142506-5	PNMW-21	Total/NA	Ground Water	PrecSep-21	
280-142506-6	PNMW-22	Total/NA	Ground Water	PrecSep-21	
280-142506-7	PNMW-23	Total/NA	Ground Water	PrecSep-21	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	PrecSep-21	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	PrecSep-21	
MB 160-489170/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-489170/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-489170/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

QC Association Summary

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

Job ID: 280-142506-1

Rad

Prep Batch: 489172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142506-1	PNMW-17	Total/NA	Ground Water	PrecSep_0	
280-142506-2	PNMW-18	Total/NA	Ground Water	PrecSep_0	
280-142506-3	PNMW-19	Total/NA	Ground Water	PrecSep_0	
280-142506-4	PNMW-20	Total/NA	Ground Water	PrecSep_0	
280-142506-5	PNMW-21	Total/NA	Ground Water	PrecSep_0	
280-142506-6	PNMW-22	Total/NA	Ground Water	PrecSep_0	
280-142506-7	PNMW-23	Total/NA	Ground Water	PrecSep_0	
280-142506-8	PNMW-21-EB	Total/NA	Ground Water	PrecSep_0	
280-142506-9	PNMW-22-DUP	Total/NA	Ground Water	PrecSep_0	
MB 160-489172/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-489172/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-489172/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 280-142506-1

Client Sample ID: PNMW-17

Date Collected: 11/03/20 14:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 20:42	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:03	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:14	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:38	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 09:45	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 01:39	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	518332	11/28/20 01:56	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515988	11/09/20 16:38	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.90 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 05:58	CMM	TAL SL
Total/NA	Prep	PrecSep_0			999.90 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:17	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Client Sample ID: PNMW-18

Date Collected: 11/05/20 12:50
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 20:47	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:06	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:22	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:40	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 09:52	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 01:06	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 01:23	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	516542	11/12/20 21:53	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516203	11/11/20 08:00	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.67 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 05:58	CMM	TAL SL
Total/NA	Prep	PrecSep_0			1000.67 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:17	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Lab Chronicle

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

Job ID: 280-142506-1

Client Sample ID: PNMW-19

Date Collected: 11/05/20 15:46
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 20:51	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:08	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:24	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:42	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 09:56	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 10:49	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	516348	11/11/20 18:57	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516203	11/11/20 08:00	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.54 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 05:58	CMM	TAL SL
Total/NA	Prep	PrecSep_0			999.54 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:17	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Client Sample ID: PNMW-20

Date Collected: 11/05/20 19:07
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 20:56	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:11	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:27	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:49	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:02	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 02:12	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 02:28	CJ	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	518332	11/28/20 11:55	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	516348	11/11/20 18:57	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516203	11/11/20 08:00	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.39 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 05:58	CMM	TAL SL
Total/NA	Prep	PrecSep_0			1000.39 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Lab Chronicle

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

Job ID: 280-142506-1

Client Sample ID: PNMW-21

Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 21:00	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:13	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:29	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:51	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:06	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 02:45	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	518332	11/28/20 03:01	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516192	11/11/20 06:14	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 06:00	CMM	TAL SL
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Client Sample ID: PNMW-22

Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 21:13	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:21	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:32	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:53	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:10	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 03:18	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 03:34	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516192	11/11/20 06:14	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.55 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 06:00	CMM	TAL SL
Total/NA	Prep	PrecSep_0			999.55 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Lab Chronicle

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

Job ID: 280-142506-1

Client Sample ID: PNMW-23

Lab Sample ID: 280-142506-7

Date Collected: 11/03/20 17:25
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 21:17	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:23	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:34	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:55	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:14	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 04:23	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 08:55	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	515988	11/09/20 16:38	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.68 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 06:00	CMM	TAL SL
Total/NA	Prep	PrecSep_0			999.68 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Client Sample ID: PNMW-21-EB

Lab Sample ID: 280-142506-8

Date Collected: 11/04/20 17:30
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 21:22	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:26	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:37	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:57	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518355	11/25/20 18:18	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 09:11	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	516348	11/11/20 18:57	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516192	11/11/20 06:14	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			1000.83 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1			492301	12/17/20 06:01	CMM	TAL SL
Total/NA	Prep	PrecSep_0			1000.83 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Lab Chronicle

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

Job ID: 280-142506-1

Client Sample ID: PNMW-22-DUP

Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142506-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 21:26	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460838	11/13/20 00:29	DSH	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460378	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 15:39	DSH	TAL CAN
Total/NA	Prep	7470A			50 mL	50 mL	460382	11/11/20 14:00	MRL	TAL CAN
Total/NA	Analysis	7470A		1			460812	11/12/20 13:59	SLD	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 10:26	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 09:27	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 09:44	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	40 mL	100 mL	516348	11/11/20 18:57	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	516040	11/10/20 08:10	LEB	TAL DEN
Total/NA	Prep	PrecSep-21			999.63 mL	1.0 g	489170	11/16/20 09:39	AVB	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	492301	12/17/20 06:01	CMM	TAL SL
Total/NA	Prep	PrecSep_0			999.63 mL	1.0 g	489172	11/16/20 10:00	AVB	TAL SL
Total/NA	Analysis	9320		1			492108	12/16/20 13:18	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			492453	12/19/20 19:49	SCB	TAL SL

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-142506-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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		Ground 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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-142506-1

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

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: Rainsberger	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103358-30221.1
Client Contact: Molly Reeves	Phone: 208·841·9707	E-Mail: Danielle.Harrington@Eurofinset.com		Page: 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-019			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: AWRP / BASP	SSOW#:			

Analysis Requested

280-142506 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,7470A Total Metals to Canton (NOTES)	9040B pH, 9056A_28D Chloride, Fluoride, Sulfate	2540C_TDS , 2540D TSS	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC to ETA St. Louis	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	D		App III & IV Metals
PNMW-17	11·3·20	1440	G	W			X	X	X	X		
PNMW-18	11·5·20	1250	G	W			X	X	X	X		
PNMW-19	11·5·20	1546	G	W			X	X	X	X		
PNMW-20	11·5·20	1907	G	W			X	X	X	X		
PNMW-21	11·4·20	1640	G	W			X	X	X	X		
PNMW-22	11·4·20	1216	G	W			X	X	X	X		
PNMW-23	11·3·20	1725	G	W			X	X	X	X		
PNMW-21-EB	11·4·20	1730	G	W			X	X	X	X		
PNMW-22-DUP	11·4·20	1216	G	W			X	X	X	X		

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Rainsberger	11·6·2020 @ 1215			11/6/20 1215	BTA-TAN
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: 1.4, 1.4, 1.4 IR# 11-0-3

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: 280-546328.1
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 #: 280-142506-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 12/7/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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/ Ra-226/Ra-228 (3/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-17 (280-142506-1)	11/3/20	14:40 Mountain		Water			X	X	X	2	
PNMW-18 (280-142506-2)	11/5/20	12:50 Mountain		Water			X	X	X	2	
PNMW-19 (280-142506-3)	11/5/20	15:46 Mountain		Water			X	X	X	2	
PNMW-20 (280-142506-4)	11/5/20	19:07 Mountain		Water			X	X	X	2	
PNMW-21 (280-142506-5)	11/4/20	16:40 Mountain		Water			X	X	X	2	
PNMW-22 (280-142506-6)	11/4/20	12:16 Mountain		Water			X	X	X	2	
PNMW-23 (280-142506-7)	11/3/20	17:25 Mountain		Water			X	X	X	2	
PNMW-21-EB (280-142506-8)	11/4/20	17:30 Mountain		Water			X	X	X	2	
PNMW-22-DUP (280-142506-9)	11/4/20	12:16 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: [signature]	Date/Time: 11/9/2020 1330	Company	Received by: FED EX	Date/Time:	Company
Relinquished by: Fed Ex	Date/Time:	Company	Received by: Molly Osborne	Date/Time: 11/10/20 09:15	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

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: 280-546326.1
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 #: 280-142506-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/27/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

54

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 Boron	7470A/7470A_Prep Mercury - 2/2	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-17 (280-142506-1)	11/3/20	14:40 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-18 (280-142506-2)	11/5/20	12:50 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-19 (280-142506-3)	11/5/20	15:46 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-20 (280-142506-4)	11/5/20	19:07 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-21 (280-142506-5)	11/4/20	16:40 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-22 (280-142506-6)	11/4/20	12:16 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-23 (280-142506-7)	11/3/20	17:25 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-21-EB (280-142506-8)	11/4/20	17:30 Mountain		Water			X	X	X	1	Use Collision Cell
PNMW-22-DUP (280-142506-9)	11/4/20	12:16 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
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
[signature]	11/9/2020 1435		[signature]	11-10-20 1000	ETA-C

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 EPA Denver Site Name _____ Cooler unpacked by: [illegible]
Cooler Received on 11-10-20 Opened on 11-10-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # N/A 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. 3.8 °C Corrected Cooler Temp. 4.7 °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: 280-142506-1

Login Number: 142506
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.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-142506-1

Login Number: 142506
List Number: 3
Creator: O'Gara, Mallory L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 11/10/20 06:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
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: 280-142506-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
280-142506-1	PNMW-17	81.5						
280-142506-2	PNMW-18	86.1						
280-142506-3	PNMW-19	85.5						
280-142506-4	PNMW-20	91.8						
280-142506-5	PNMW-21	88.2						
280-142506-6	PNMW-22	84.2						
280-142506-7	PNMW-23	92.7						
280-142506-8	PNMW-21-EB	88.8						
280-142506-9	PNMW-22-DUP	91.2						

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
LCS 160-489170/1-A	Lab Control Sample	79.1						
LCSD 160-489170/2-A	Lab Control Sample Dup	84.5						
MB 160-489170/22-A	Method Blank	89.4						

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)					
280-142506-1	PNMW-17	81.5	99.1					
280-142506-2	PNMW-18	86.1	99.4					
280-142506-3	PNMW-19	85.5	101					
280-142506-4	PNMW-20	91.8	101					
280-142506-5	PNMW-21	88.2	101					
280-142506-6	PNMW-22	84.2	96.4					
280-142506-7	PNMW-23	92.7	100					
280-142506-8	PNMW-21-EB	88.8	98.7					
280-142506-9	PNMW-22-DUP	91.2	102					

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-142506-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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)**						
LCS 160-489172/1-A	Lab Control Sample	79.1	102						
LCSD 160-489172/2-A	Lab Control Sample Dup	84.5	102						
MB 160-489172/22-A	Method Blank	89.4	105						

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: 280-142504-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Authorized for release by:
12/14/2020 5:33:15 PM

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

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.

Table of Contents

Definitions/Glossary

Client: HDR Inc
Job ID: 280-142504-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 280-142504-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-142504-1

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 11/06/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.2 C.

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
All of the samples required dilution prior to analysis for various analyses. The reporting limits have been adjusted accordingly.

MS/MSD analyses were performed on sample PNMW-22. The MS/MSD for Fluoride method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

REVISION
Two of the samples had a collection time of 11/04/2020 and not 11/03/2020. The report has been corrected to reflect the correct collection dates.

Detection Summary

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

Job ID: 280-142504-1

Client Sample ID: PNMW-17 — Lab Sample ID: 280-142504-1

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
Calcium	210		1.0	0.58	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	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.17	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	420		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-21 — Lab Sample ID: 280-142504-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.15		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	200		1.0	0.58	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	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	240		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.27	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	600		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1700		50	24	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-22 — Lab Sample ID: 280-142504-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.14		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	320		1.0	0.58	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	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	210		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.27	J F1	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	900		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-23 — Lab Sample ID: 280-142504-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.13		0.10	0.023	mg/L	1		6010C	Total Recoverable
Calcium	310		1.0	0.58	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	22.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	1400		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2500		20	9.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 280-142504-1

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
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN

Protocol References:

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

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

Laboratory References:

TAL 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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-142504-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-142504-1	PNMW-17	Ground Water	11/03/20 11:40	11/06/20 12:15	
280-142504-2	PNMW-21	Ground Water	11/04/20 16:40	11/06/20 12:15	
280-142504-3	PNMW-22	Ground Water	11/04/20 12:16	11/06/20 12:15	
280-142504-4	PNMW-23	Ground Water	11/03/20 17:25	11/06/20 12:15	

Client Sample Results

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

Job ID: 280-142504-1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142504-1**
Date Collected: 11/03/20 11:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.21		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 22:44	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142504-2**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.15		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 22:57	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-142504-3**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.14		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 23:01	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-142504-4**
Date Collected: 11/03/20 17:25 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.13		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 23:06	1

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

Client Sample ID: PNMW-17 — **Lab Sample ID: 280-142504-1**
Date Collected: 11/03/20 11:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 16:49	1

Client Sample ID: PNMW-21 — **Lab Sample ID: 280-142504-2**
Date Collected: 11/04/20 16:40 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 16:51	1

Client Sample ID: PNMW-22 — **Lab Sample ID: 280-142504-3**
Date Collected: 11/04/20 12:16 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	320		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 16:54	1

Client Sample ID: PNMW-23 — **Lab Sample ID: 280-142504-4**
Date Collected: 11/03/20 17:25 — **Matrix: Ground Water**
Date Received: 11/06/20 12:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 16:56	1

Client Sample Results

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

Job ID: 280-142504-1

General Chemistry

Client Sample ID: PNMW-17
Date Collected: 11/03/20 11:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142504-1
Matrix: Ground 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			11/25/20 12:37	1
Temperature	23.5	HF	1.0	1.0	Degrees C			11/25/20 12:37	1
Chloride	260		15	5.1	mg/L			11/27/20 20:27	5
Fluoride	0.17	J	0.50	0.17	mg/L			11/27/20 20:11	1
Sulfate	420		25	5.2	mg/L			11/27/20 20:27	5
Total Dissolved Solids (TDS)	1300		20	9.4	mg/L			11/10/20 17:12	1

Client Sample ID: PNMW-21
Date Collected: 11/04/20 16:40
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142504-2
Matrix: Ground 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			11/25/20 12:41	1
Temperature	23.5	HF	1.0	1.0	Degrees C			11/25/20 12:41	1
Chloride	240		15	5.1	mg/L			11/27/20 21:00	5
Fluoride	0.27	J	0.50	0.17	mg/L			11/27/20 20:44	1
Sulfate	600		25	5.2	mg/L			11/27/20 21:00	5
Total Dissolved Solids (TDS)	1700		50	24	mg/L			11/10/20 17:12	1

Client Sample ID: PNMW-22
Date Collected: 11/04/20 12:16
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142504-3
Matrix: Ground 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			11/25/20 12:45	1
Temperature	23.0	HF	1.0	1.0	Degrees C			11/25/20 12:45	1
Chloride	210		30	10	mg/L			11/27/20 22:55	10
Fluoride	0.27	J F1	0.50	0.17	mg/L			11/27/20 21:49	1
Sulfate	900		50	10	mg/L			11/27/20 22:55	10
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L			11/10/20 17:12	1

Client Sample ID: PNMW-23
Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142504-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			11/25/20 12:48	1
Temperature	22.7	HF	1.0	1.0	Degrees C			11/25/20 12:48	1
Chloride	110		3.0	1.0	mg/L			11/28/20 00:01	1
Fluoride	ND		0.50	0.17	mg/L			11/28/20 00:01	1
Sulfate	1400		50	10	mg/L			11/28/20 00:17	10
Total Dissolved Solids (TDS)	2500		20	9.4	mg/L			11/10/20 17:12	1

QC Sample Results

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

Job ID: 280-142504-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-460403/1-A
Matrix: Water
Analysis Batch: 460802

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 460403

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.023	mg/L		11/11/20 14:00	11/12/20 21:40	1

Lab Sample ID: LCS 240-460403/2-A
Matrix: Water
Analysis Batch: 460802

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 460403

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.996		mg/L		100	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-460403/1-A
Matrix: Water
Analysis Batch: 460981

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 460403

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.58	mg/L		11/11/20 14:00	11/13/20 15:49	1

Lab Sample ID: LCS 240-460403/3-A
Matrix: Water
Analysis Batch: 460981

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 460403

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25.0	25.7		mg/L		103	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-518178/30
Matrix: Water
Analysis Batch: 518178

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

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-518332/6
Matrix: Water
Analysis Batch: 518332

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			11/27/20 12:10	1
Fluoride	ND		0.50	0.17	mg/L			11/27/20 12:10	1
Sulfate	ND		5.0	1.0	mg/L			11/27/20 12:10	1

Lab Sample ID: LCS 280-518332/4
Matrix: Water
Analysis Batch: 518332

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

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

Lab Sample ID: LCS 280-518332/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.91		mg/L		98	90 - 110
Sulfate	100	95.8		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-518332/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	97.2		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.92		mg/L		98	90 - 110	0	10
Sulfate	100	94.2		mg/L		94	90 - 110	2	10

Lab Sample ID: MRL 280-518332/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.07		mg/L		81	50 - 150
Fluoride	0.500	0.471	J	mg/L		94	50 - 150
Sulfate	5.00	4.33	J	mg/L		87	50 - 150

Lab Sample ID: 280-142504-3 MS — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.27	J F1	5.00	4.23	F1	mg/L		79	80 - 120

Lab Sample ID: 280-142504-3 MS — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	210		500	718		mg/L		102	80 - 120
Sulfate	900		500	1460		mg/L		111	80 - 120

Lab Sample ID: 280-142504-3 MSD — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.27	J F1	5.00	4.69		mg/L		88	80 - 120	10	20

Lab Sample ID: 280-142504-3 MSD — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	210		500	710		mg/L		101	80 - 120	1	20
Sulfate	900		500	1440		mg/L		107	80 - 120	1	20

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

Lab Sample ID: 280-142504-3 DU — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	0.27	J F1		0.286	J	mg/L				7	15

Lab Sample ID: 280-142504-3 DU — **Client Sample ID: PNMW-22**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 518332

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	210			211		mg/L				2	15
Sulfate	900			928		mg/L				3	15

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

Lab Sample ID: MB 280-516142/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			11/10/20 17:12	1

Lab Sample ID: LCS 280-516142/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 516142

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids (TDS)			501	522		mg/L		104	93 - 110		

Lab Sample ID: 280-142504-4 DU — **Client Sample ID: PNMW-23**
Matrix: Ground Water — **Prep Type: Total/NA**
Analysis Batch: 516142

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	2500			2470		mg/L				0.4	10

QC Association Summary

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

Job ID: 280-142504-1

Metals

Prep Batch: 460403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total Recoverable	Ground Water	3005A	
280-142504-2	PNMW-21	Total Recoverable	Ground Water	3005A	
280-142504-3	PNMW-22	Total Recoverable	Ground Water	3005A	
280-142504-4	PNMW-23	Total Recoverable	Ground Water	3005A	
MB 240-460403/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-460403/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-460403/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 460802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total Recoverable	Ground Water	6010C	460403
280-142504-2	PNMW-21	Total Recoverable	Ground Water	6010C	460403
280-142504-3	PNMW-22	Total Recoverable	Ground Water	6010C	460403
280-142504-4	PNMW-23	Total Recoverable	Ground Water	6010C	460403
MB 240-460403/1-A	Method Blank	Total Recoverable	Water	6010C	460403
LCS 240-460403/2-A	Lab Control Sample	Total Recoverable	Water	6010C	460403

Analysis Batch: 460981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total Recoverable	Ground Water	6020A	460403
280-142504-2	PNMW-21	Total Recoverable	Ground Water	6020A	460403
280-142504-3	PNMW-22	Total Recoverable	Ground Water	6020A	460403
280-142504-4	PNMW-23	Total Recoverable	Ground Water	6020A	460403
MB 240-460403/1-A	Method Blank	Total Recoverable	Water	6020A	460403
LCS 240-460403/3-A	Lab Control Sample	Total Recoverable	Water	6020A	460403

General Chemistry

Analysis Batch: 516142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total/NA	Ground Water	SM 2540C	
280-142504-2	PNMW-21	Total/NA	Ground Water	SM 2540C	
280-142504-3	PNMW-22	Total/NA	Ground Water	SM 2540C	
280-142504-4	PNMW-23	Total/NA	Ground Water	SM 2540C	
MB 280-516142/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-516142/1	Lab Control Sample	Total/NA	Water	SM 2540C	
280-142504-4 DU	PNMW-23	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 518178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total/NA	Ground Water	9040B	
280-142504-2	PNMW-21	Total/NA	Ground Water	9040B	
280-142504-3	PNMW-22	Total/NA	Ground Water	9040B	
280-142504-4	PNMW-23	Total/NA	Ground Water	9040B	
LCS 280-518178/30	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 518332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-1	PNMW-17	Total/NA	Ground Water	9056A	
280-142504-1	PNMW-17	Total/NA	Ground Water	9056A	
280-142504-2	PNMW-21	Total/NA	Ground Water	9056A	

General Chemistry (Continued)

Analysis Batch: 518332 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-142504-2	PNMW-21	Total/NA	Ground Water	9056A	
280-142504-3	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-4	PNMW-23	Total/NA	Ground Water	9056A	
280-142504-4	PNMW-23	Total/NA	Ground Water	9056A	
MB 280-518332/6	Method Blank	Total/NA	Water	9056A	
LCS 280-518332/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-518332/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-518332/3	Lab Control Sample	Total/NA	Water	9056A	
280-142504-3 MS	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3 MS	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3 MSD	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3 MSD	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3 DU	PNMW-22	Total/NA	Ground Water	9056A	
280-142504-3 DU	PNMW-22	Total/NA	Ground Water	9056A	

Lab Chronicle

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

Job ID: 280-142504-1

Client Sample ID: PNMW-17

Lab Sample ID: 280-142504-1
Date Collected: 11/03/20 11:40
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 22:44	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 16:49	DSH	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 12:37	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/27/20 20:11	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	518332	11/27/20 20:27	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN

Client Sample ID: PNMW-21

Lab Sample ID: 280-142504-2
Date Collected: 11/04/20 16:40
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 22:57	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 16:51	DSH	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 12:41	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/27/20 20:44	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	518332	11/27/20 21:00	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN

Client Sample ID: PNMW-22

Lab Sample ID: 280-142504-3
Date Collected: 11/04/20 12:16
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 23:01	WKD	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 16:54	DSH	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 12:45	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/27/20 21:49	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/27/20 22:55	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	SVC	TAL DEN

Client Sample ID: PNMW-23

Lab Sample ID: 280-142504-4
Date Collected: 11/03/20 17:25
Matrix: Ground Water
Date Received: 11/06/20 12:15

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	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6010C		1			460802	11/12/20 23:06	WKD	TAL CAN

Lab Chronicle

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

Job ID: 280-142504-1

Client Sample ID: PNMW-23

Date Collected: 11/03/20 17:25
Date Received: 11/06/20 12:15

Lab Sample ID: 280-142504-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	460403	11/11/20 14:00	MRL	TAL CAN
Total Recoverable	Analysis	6020A		1			460981	11/13/20 16:56	DSH	TAL CAN
Total/NA	Analysis	9040B		1			518178	11/25/20 12:48	SPG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	518332	11/28/20 00:01	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	518332	11/28/20 00:17	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	516142	11/10/20 17:12	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
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Job ID: 280-142504-1

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	Identification Number	Expiration Date
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		Ground 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
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: Rainsberger	Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-103358-30221.1
Client Contact: Molly Reeves	Phone: 208-841-9707	E-Mail: Danielle.Harrington@Eurofinset.com		Page: 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-019			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: ~~AWRP / BASP~~ ELF	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:

App III Metals

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 Total Metals to Canton (NOTES)	9040B pH, 9056A_28D Chloride, Fluoride, Sulfate	2540C_TDS, ~~25400_TSS~~	~~9315_Ra226,8320_Ra228/ Ra226&Ra228_GPPC or EPA Sr Lodur~~	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	N	D	X	
PNMW-17	11.3.20	1440	G	W			X	X	X			
PNMW-21	11.4.20	1640	G	W			X	X	X			
PNMW-22	11.4.20	1216	G	W			X	X	X			
PNMW-23	11.3.20	1725	G	W			X	X	X			

EB & DUP on separate COC

280-142504 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
K Rainsberger	11-6-2020 1215	HDR	[signature]	11/6/20 1215	ETA-Den

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2-5 IR# 11-03

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: 280-546325.1
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 #: 280-142504-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 11/27/2020			
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 - Pawnee	Project #: 28014378			
Site: Xcel Energy - Pawnee	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:

54

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)	6010C/3005A Boron	6020A/3005A Calcium	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-17 (280-142504-1)	11/3/20	11:40 Mountain		Water			X	X	1	
PNMW-21 (280-142504-2)	11/3/20	16:40 Mountain		Water			X	X	1	
PNMW-22 (280-142504-3)	11/3/20	12:16 Mountain		Water			X	X	1	
PNMW-23 (280-142504-4)	11/3/20	17:25 Mountain		Water			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
[signature]	11/9/2020 1435		[signature]	11-10-20 1000	TETAE
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 EPA Denver Site Name _____ Cooler unpacked by: [illegible]
Cooler Received on 11-10-20 Opened on 11-10-20
FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # 7A 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. 3.8 °C Corrected Cooler Temp. 4.7 °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: 280-142504-1

Login Number: 142504
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.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	