Groundwater Monitoring 2017 Annual Report

for Compliance with the Coal Combustion Residuals (CCR) Rule

Pawnee Station

Public Service Company of Colorado Energy

January 30, 2018

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Table of Abbreviations and Acronyms

Abbreviation	Definition
BTV	background threshold value
CCR	Coal Combustion Residuals
COI	constituent of interest
EPA	Environmental Protection Agency
LCS	Laboratory Control Samples
MS/MSD	matrix spike/ matrix spike duplicate
QC	quality control
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
SSI	statistically significant increase
TDS	Total Dissolved Solids
TSS	Total Suspended Solids

Certification

2017 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, 2019

1.0 Introduction

The U.S. Environmental Protection Agency's (EPA's) final Coal Combustion Residuals (CCR) Rule establishes a comprehensive set of requirements for the management and disposal of CCR (or coal ash) in landfills and surface impoundments by electric utilities. 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 one active CCR unit, a landfill subject to the CCR Rule (**Figure 2**).

In 2017, groundwater monitoring has been conducted at Pawnee to complete collection of eight rounds of background sampling plus the first detection monitoring event (completed before October 17, 2017) as specified under CCR Rule Part 257.94. This Annual Groundwater Monitoring Report presents the sampling and analysis completed in 2015 through 2017, which includes background monitoring and the first detection monitoring event. The status of the groundwater monitoring program at the end of 2017 is in detection monitoring.

The water quality collected from monitoring wells located upgradient of the CCR facilities has been compiled and statistical analysis has begun to develop background threshold values (BTV) for each constituent of interest (COI). In 2018 PSCo will determine if a downgradient observation from detection monitoring represents a statistically significant increase (SSI) over background.

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. Pawnee Station currently has one unlined landfill unit, North 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 CCR landfill is operated as a single cell approximately 16 acres in area. The CCR unit operation and monitoring are described further in the Pawnee Station Groundwater Monitoring System Certification (HDR, 2017).

2.1 Hydrogeology

The stratigraphic units present at the 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 thickest deposit of dune sand is south of the landfill.

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 Pierre Shale, which acts as a confining layer. Regional groundwater flow is generally to the northeast across the site towards the South Platte River. Groundwater flow directly under the landfill is to the east and northeast.

Six monitoring wells located around the perimeter of the landfill are monitored for compliance with the CCR Rule. 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 as described in the Pawnee Station Groundwater Monitoring System Certification (HDR, 2017). Monitoring wells PNMW-15 and PNMW-16 were drilled and constructed in February 2017 to serve as downgradient monitoring wells for the CCR monitoring network. Wells PNMW-13 and PNMW-14 were drilled in December 2015 to serve as upgradient monitoring wells for the CCR monitoring network. PNMW-1B and PNMW-2B were existing wells for groundwater monitoring at the Pawnee Station prior to initiation of the CCR monitoring program. The well locations are shown on **Figure 2**.

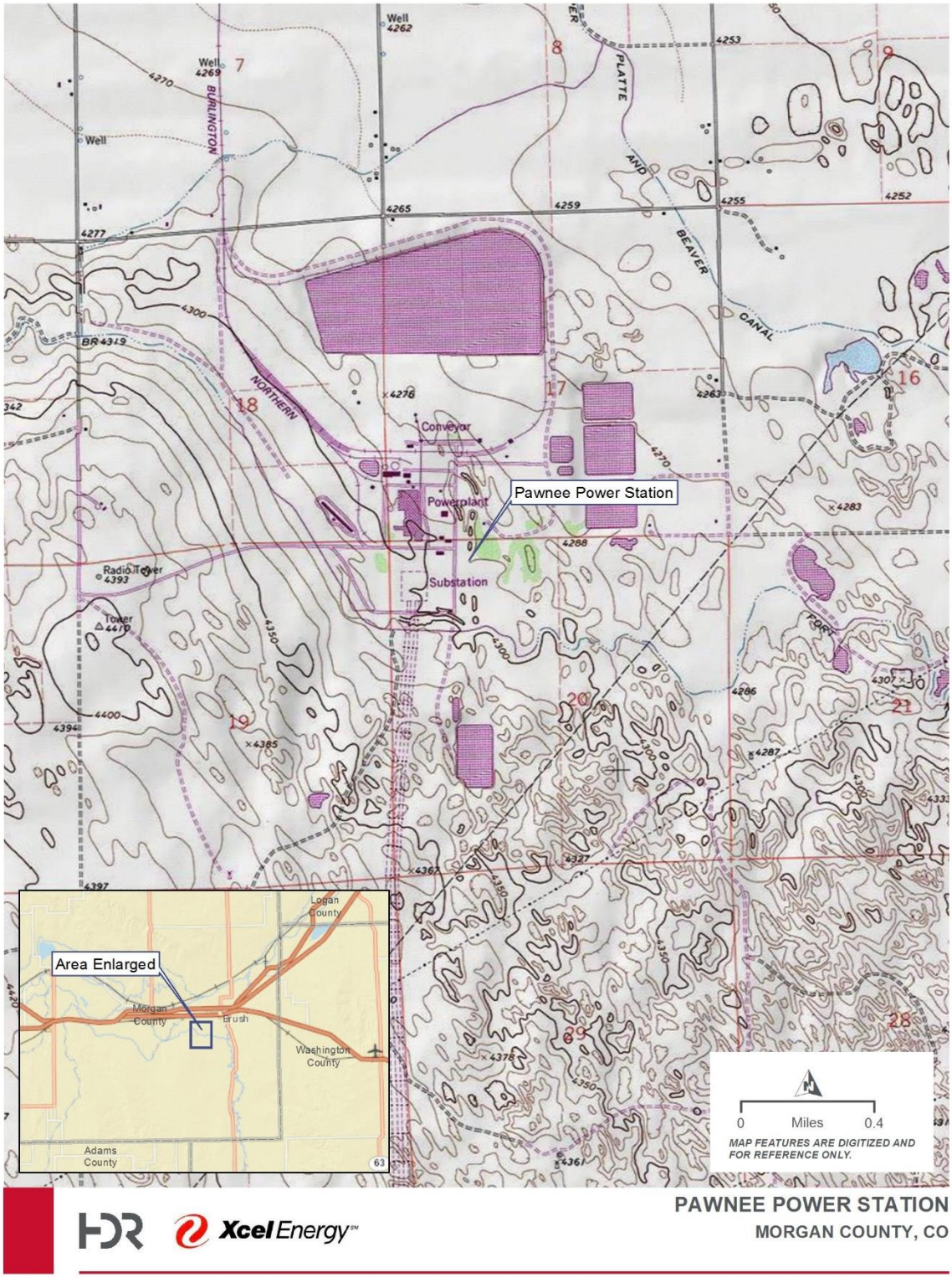


Figure 1. Vicinity map for Pawnee Station.

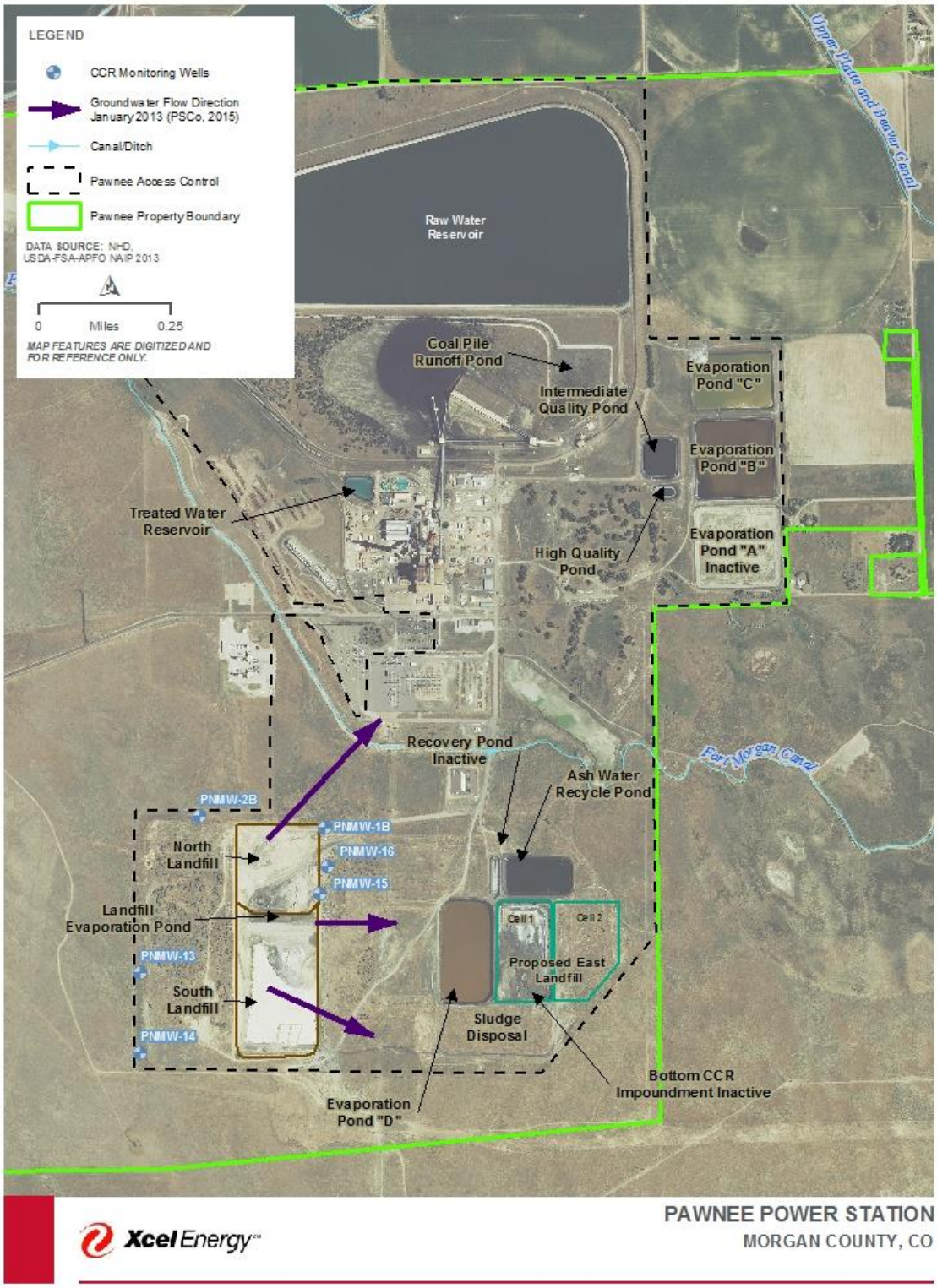


Figure 2. Pawnee Station – CCR unit and monitoring well location map.

3.0 Monitoring

3.1 Frequency

As stipulated in the CCR Rule, eight rounds of background groundwater sampling was completed before October 17, 2017. Sampling frequency was conducted on a monthly basis between February and September 2017. In addition, the first detection monitoring event was performed on October 10-11, 2017. **Table 1** provides the monitoring well identification, the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the CCR Rule for the background sampling, detection monitoring or assessment monitoring programs.

Table 1. Number and dates of groundwater samples collected for each 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 20, 2017 March 22, 2017 April 18, 2017 May 23, 2017 June 13, 2017 July 11, 2017 August 25, 2017 September 19, 2017	Background Monitoring
PNMW-1B	Downgradient	October 11, 2017	Detection Monitoring
PNMW-2B	Upgradient / Background	February 21, 2017 March 22, 2017 April 18, 2017 May 24, 2017 June 13, 2017 July 11, 2017 August 25, 2017 September 19, 2017	Background Monitoring
PNMW-2B	Upgradient / Background	October 11, 2017	Detection Monitoring
PNMW-13	Upgradient / Background	February 21, 2017 March 23, 2017 April 19, 2017 May 24, 2017 June 13, 2017 July 10, 2017 August 24, 2017 September 27, 2017	Background Monitoring
PNMW-13	Upgradient / Background	October 11, 2017	Detection Monitoring

Table 1. Number and dates of groundwater samples collected for each well and the required monitoring programs (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
PNMW-14	Upgradient / Background	February 21, 2017 March 23, 2017 April 18, 2017 May 24, 2017 June 13, 2017 July 10, 2017 August 24, 2017 September 19, 2017	Background Monitoring
PNMW-14	Upgradient / Background	October 11, 2017	Detection Monitoring
PNMW-15	Downgradient	February 22, 2017 March 23, 2017 April 18, 2017 May 24, 2017 June 15, 2017 July 10, 2017 August 24, 2017 September 19, 2017	Background Monitoring
PNMW-15	Downgradient	October 10, 2017	Detection Monitoring
PNMW-16	Downgradient	February 22, 2017 March 23, 2017 April 18, 2017 May 23, 2017 June 15, 2017 July 11, 2017 August 24, 2017 September 19, 2017	Background Monitoring
PNMW-16	Downgradient	October 10, 2017	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 five monitoring 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 SS Geosub pump, and the pump and hose were decontaminated between wells following protocols outlined in the Sampling SOP. Each well was purged until field parameters stabilized in accordance with the sampling SOP. In accordance with the CCR Rule, groundwater samples were not field filtered. The field parameters of turbidity, pH, and temperature were measured using a YSI Professional Plus (or an equivalent) portable water quality instrument that was calibrated prior to use each day of sampling. The results of field measurements were recorded on a field data form, which is maintained as part of the field sampling records. For quality control, one field duplicate sample and one field equipment blank sample was collected during each sample event. Water samples were delivered under Chain of Custody to TestAmerica in Denver, Colorado.

3.3 Analytical Testing

Groundwater samples for background sampling were analyzed for the COIs shown in **Table 2**, which include all of the parameters in Appendices III and IV of CCR Rule Part 257 for the initial eight sample events, plus Total Suspended Solids (TSS). The laboratory analyzed matrix spike/matrix spike duplicates (MS/MSD) at a rate of 5 percent, per laboratory quality control procedures.

Groundwater samples for detection monitoring were analyzed for the CCR Rule Appendix III constituents shown in **Table 2.** The laboratory analyzed MS/MSD at a rate of 5 percent, per laboratory quality control procedures.

Table 2. 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

4.0 Data Validation and Data Management

Data validation was conducted to eliminate unacceptable analytical data, minimize suspect analytical data, and designate a data qualifier for any data quality limitation discovered. All 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, 2017b).

All samples and quality control (QC) were reviewed and evaluated, and no samples were rejected. Most QC analyses were within reportable limits; however, when QC was outside limit controls, samples were reported as estimated. Relative percent difference (RPD) failures for field duplicate analyses were slightly greater than the 20% limit criteria. Laboratory Control Sample (LCS)/LCS duplicates and MS/MSD duplicates %RPD recoveries all were within control limits. Data analyses required minimal qualifications, and all data were usable, even when qualified.

5.0 Monitoring Results

5.1 Water Levels and Groundwater Flow Direction

The water levels at both upgradient and downgradient monitoring wells were recorded during the background monitoring events (initial 8 sample events) between December 2015 and July 2017 and are provided in **Table 3**. Water levels measured during the detection monitoring event in October 2017 are also provided in **Table 3**. The water levels and contour map (**Appendix A**) confirm that monitoring wells PNMW-2B, PNMW-13, and PNMW-14 are all located upgradient of the landfill and are appropriate to represent background water quality. The groundwater flow direction is generally east northeast under the landfill. Therefore, the selected downgradient wells are appropriately located to monitor the CCR landfill.

5.2 Water Quality

Eight groundwater sampling events of both upgradient and downgradient wells occurred between February 20, 2015 and September 27, 2017 for background water monitoring. All six wells were sampled during the eight events (**Table 1**). Groundwater was analyzed for CCR Rule Appendix III and IV COIs (**Table 2**). Laboratory reports are provided in **Appendix B**. Statistical evaluation began in 2017 of the water quality from the background monitoring wells (PNMW-2B, PNMW-13, and PNMW-14) for the first 8 sample events to calculate a BTV for each Appendix III COI.

Water quality sampling for the first groundwater detection monitoring event was performed on October 10-11, 2017. Samples were collected at all six monitoring wells and water was analyzed for CCR Rule Appendix III COIs (**Table 2**). Laboratory reports are provided in **Appendix B**. Within 90 days of receiving the detection monitoring laboratory report the results will be compared against the BTVs to determine if there was a statistically significant increase (SSI) of any Appendix III COI. This SSI evaluation will occur in 2018 and will therefore be reported in the 2018 annual report. Identification of an SSI for any COI at any downgradient monitoring well is an indication that further study is warranted. Further study includes the opportunity for PSCo to demonstrate in writing (within 90 days of detecting the SSI) that the SSI is the result of a source other than the CCR unit or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Table 3. Groundwater elevations in monitoring wells at Pawnee Station.

Site	Well ID	Groundwater Elevation (ft amsl)									Casing Elevation (ft amsl)
		February 2017	March 2017	April 2017	May 2017	June 2017	July 2017	August 2017	September 2017	October 2017	
Pawnee	PNMW-1B	4311.48	4311.50	4311.26	4311.07	4311.07	4310.70	4309.62	4309.751	4308.67	4332.23
Pawnee	PNMW-2B	4321.74	4321.47	4321.35	4321.26	4321.21	4321.09	4320.96	4320.923	4320.82	4359.76
Pawnee	PNMW-13	4335.17	4334.55	4334.30	4333.94	4335.91	4343.78	4333.40	4333.372	4333.02	4378.11
Pawnee	PNMW-14	4316.25	4316.20	4316.12	4316.02	4315.61	4315.87	4315.70	4315.608	4315.52	4376.96
Pawnee	PNMW-15	4312.67	4312.79	4312.88	4312.81	4312.77	4312.38	4312.21	4311.908	4311.57	4341.568
Pawnee	PNMW-16	4307.14	4307.25	4307.47	4307.47	4307.51	4306.85	4306.27	4305.899	4305.72	4322.729

6.0 Summary

The following observations are based on CCR Rule compliance monitoring data collected during the 2017 and prior sample events:

- CCR certified network wells PNMW-15 and PNMW-16 were drilled and constructed in February 2017 to serve as downgradient monitoring wells. CCR certified network wells PNMW-13 and PNMW-14 were drilled in December 2015 to serve as upgradient monitoring wells. CCR certified network wells PNMW-1B and PNMW-2B were existing wells for groundwater monitoring at the Pawnee Station prior to initiation of the CCR monitoring program (HDR, 2017).
- All six of the CCR monitoring wells that make up the certified well network were sampled between February 2017 and September 2017 for background water quality. Statistical evaluation of upgradient water quality began to develop BTVs.
- All six of the CCR monitoring wells that make up the certified well network were sampled during the October 2017 detection monitoring event.
- Groundwater flow direction is generally to the east northeast under the CCR landfill.
- Pawnee Station status at the end of 2017 is detection monitoring.

In 2018, and within 90 days of receiving the detection monitoring laboratory report, PSCo will evaluate the detection monitoring data to determine if a downgradient observation represents an SSI over background. If an SSI is identified for one or more Appendix III COIs in 2018, PSCo will within 90 days: 1) establish an assessment monitoring program, 2) demonstrate that a source other than the CCR unit caused the SSI over background, or 3) demonstrate that the SSI over background resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If an SSI is not detected, PSCo will continue detection monitoring in 2018.

7.0 References

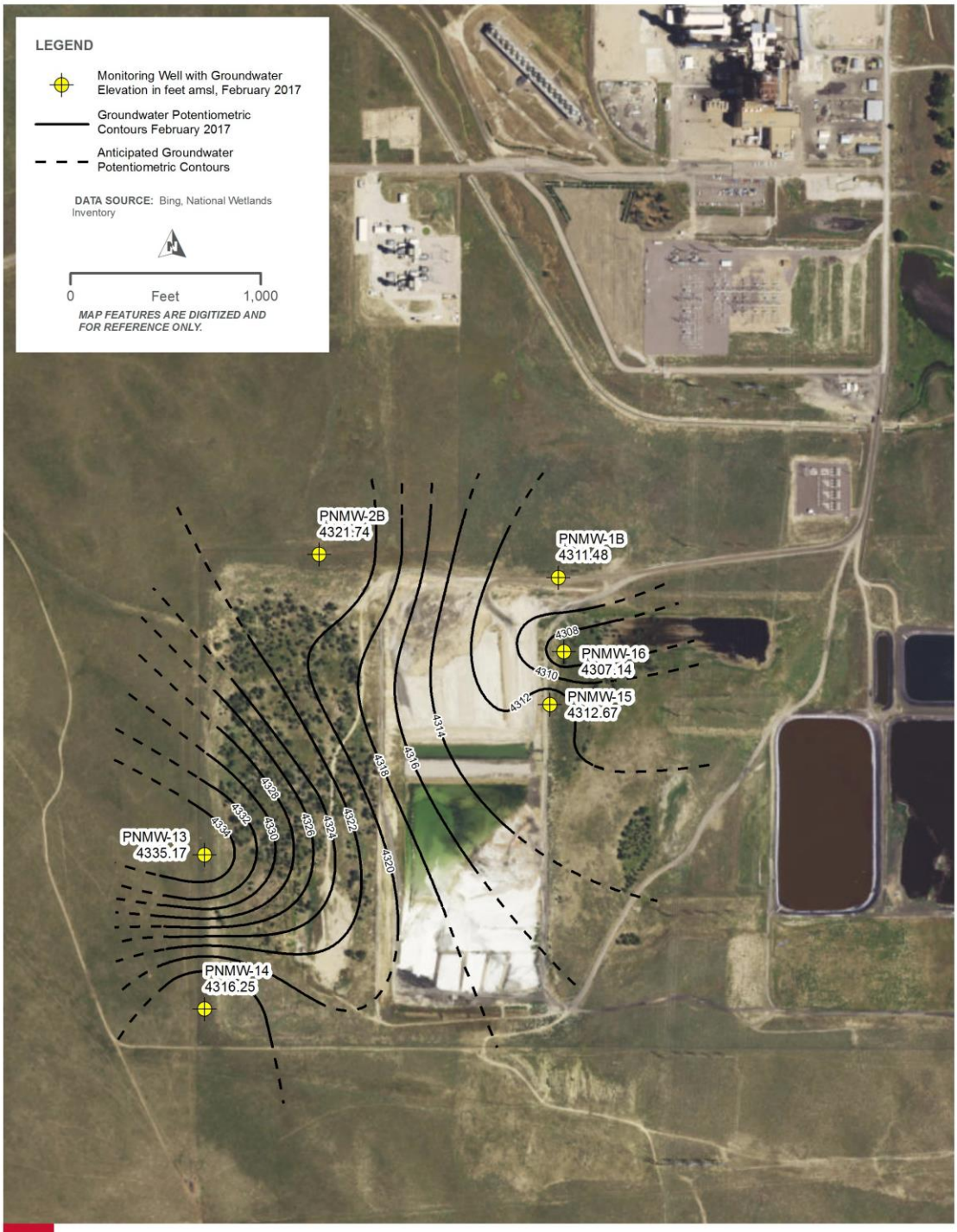
HDR, 2015. Groundwater Sample Collection Standard Operating Procedure. October 28, 2015.

HDR, 2017. Groundwater Monitoring System Certification - Compliance with the Coal Combustion Residuals Rule Pawnee Station. September, 2017.

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

Appendix A

Potentiometric Surface Maps



Xcel Energy

PAWNEE POWER STATION
MORGAN COUNTY, CO

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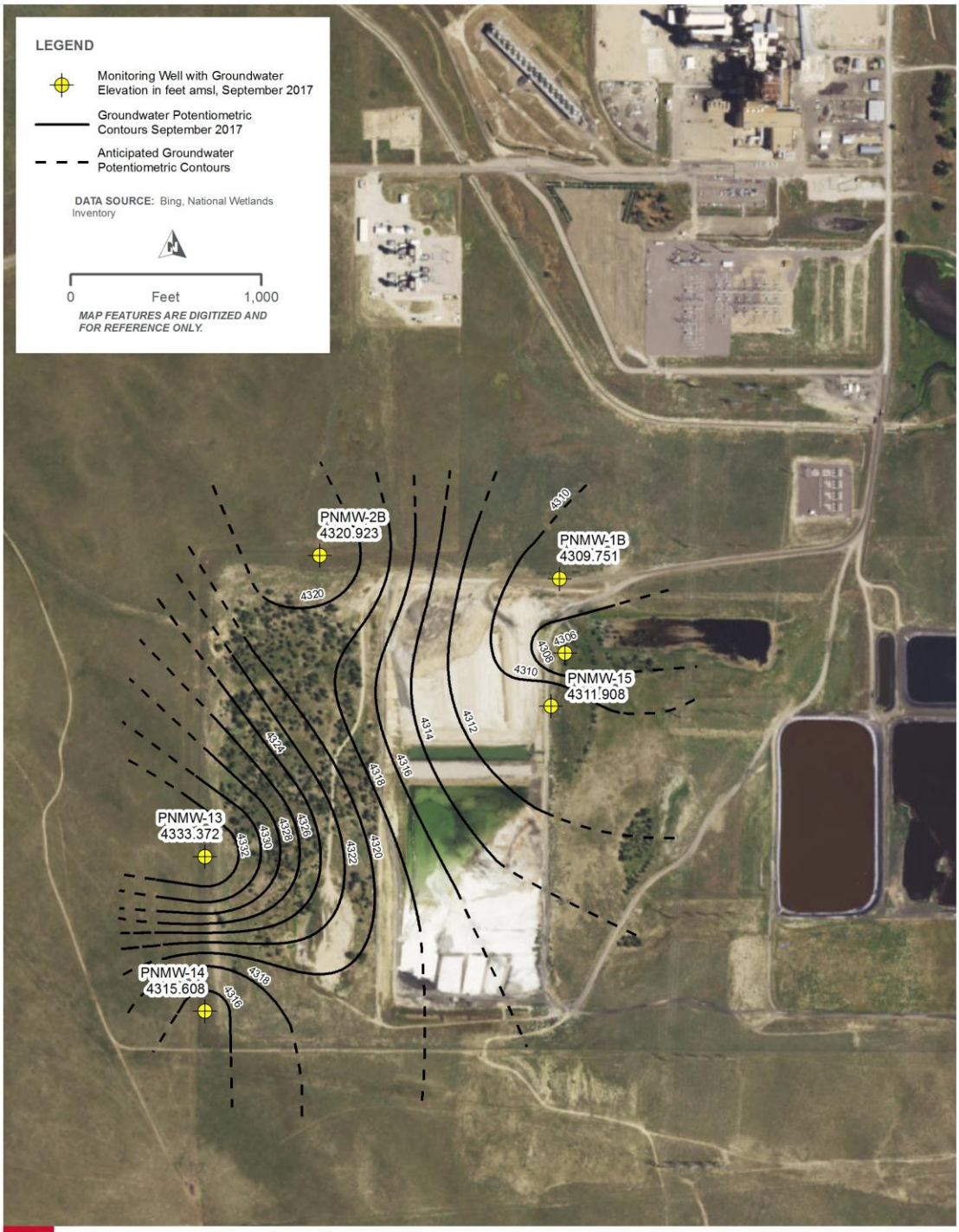

Xcel Energy

PAWNEE POWER STATION
MORGAN COUNTY, CO

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Appendix B

Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-94178-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/15/2018 3:10:36 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-94178-1

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
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.
B	Compound was found in the blank and sample.
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.

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: 280-94178-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-94178-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 2/23/2017 at 11:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.3º C, 0.7º C, 1.7º C and 2.1º C.

The container label of one of two 500 ml nitric preserved plastic containers for the following sample did not match the information listed on the Chain-of-Custody (COC): 280-94178-5. The container label lists PNMW-12, while the COC lists 280-94178-5. The container was matched by sample collection time and date. The sample was logged per the COC.

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: 280-94178-3. The sample was logged per the container labels with a sample collection time of 1415.

TOTAL RECOVERABLE METALS
Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 03/03/2017 and analyzed on 03/06/2017.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 03/03/2017 and analyzed on 03/06/2017.

Antimony, Barium and Calcium were detected in method blank MB 240-269136/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have 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

Job ID: 280-94178-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 03/13/2017.

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

TOTAL DISSOLVED SOLIDS

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 02/24/2017.

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

TOTAL SUSPENDED SOLIDS

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 02/27/2017.

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

CORROSIVITY (PH)

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 02/24/2017 and 03/01/2017.

The pH did not stabilize in the initial run or in the rerun for PNMW-2BEB (280-94178-9), so the result is reported as is.

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

ANIONS (28 DAYS)

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 02/28/2017 and 03/01/2017.

Sulfate was detected in method blank MB 280-363866/6 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.

Samples PNMW-1B (280-94178-3)[5X], PNMW-15 (280-94178-5)[5X], and PNMW-16 (280-94178-6)[10X] 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 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 03/01/2017 and analyzed on 03/23/2017.

The following samples were prepped at a reduced aliquot due to the cloudy appearance of the samples: PNMW-15 (280-94178-5), PNMW-16 (280-94178-6).

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

RADIUM-228

Samples PNMW-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15

Job ID: 280-94178-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 03/01/2017 and analyzed on 03/15/2017.

Radium-228 exceeded the RPD limit for the duplicate of sample PNMW-13 (280-94178-1). Refer to the QC report for details.

The following samples were prepped at a reduced aliquot due to the cloudy appearance of the samples: PNMW-15 (280-94178-5), PNMW-16 (280-94178-6).

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-13 (280-94178-1), PNMW-14 (280-94178-2), PNMW-1B (280-94178-3), PNMW-2B (280-94178-4), PNMW-15 (280-94178-5), PNMW-16 (280-94178-6), PNMW-13D (280-94178-8) and PNMW-2BEB (280-94178-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 03/24/2017.

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

TestAmerica Job ID: 280-94178-1

Client Sample ID: PNMW-13 — Lab Sample ID: 280-94178-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.25		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.0021	B	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.055	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	34	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00086	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0026		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0077	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.0013		0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0018	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.057		0.0080	0.00016	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	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.7	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	37		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	340		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-14 — Lab Sample ID: 280-94178-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.074	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00086	J B	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0039	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.17	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Beryllium	0.00052	J	0.0010	0.00040	mg/L	1		6020A	Total Recoverable
Calcium	53	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0032		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.017		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0068	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.0057		0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0037	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-94178-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.041		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.0	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.2		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	240		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	82		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-1B — Lab Sample ID: 280-94178-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00040	J B	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0016	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.044	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	120	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Chromium	0.0020		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0043	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00034	J	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.017		0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.088		0.0080	0.00016	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	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	68		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.94		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	300		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	950		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2B — Lab Sample ID: 280-94178-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.051	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00028	J B	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.00061	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.18	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	96	B	1.0	0.043	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-2B (Continued) — Lab Sample ID: 280-94178-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0024		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0030	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00024	J	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0027	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.039		0.0080	0.00016	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	22.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.54		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	28		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	510		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: PNMW-15 — Lab Sample ID: 280-94178-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.36		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.050	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	190	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00091	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0020		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0029	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00092	J	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.012		0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.15		0.0080	0.00016	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	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.8		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.31	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	950		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1700		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	29		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-94178-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.36		0.20	0.0081	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-16 (Continued)

Lab Sample ID: 280-94178-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00035	J B	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0037	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.13	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Beryllium	0.00048	J	0.0010	0.00040	mg/L	1		6020A	Total Recoverable
Calcium	250	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0076		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.020		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0058	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.0068		0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0024	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.18		0.0080	0.00016	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	3.1		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.31	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100	B	50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	120		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-13D

Lab Sample ID: 280-94178-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.24		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00088	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.039	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	32	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00034	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.00062	J	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0063	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00038	J	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Lithium	0.056		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.6	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.50	0.060	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-13D (Continued) — Lab Sample ID: 280-94178-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	36		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	350		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	34		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2BEB — Lab Sample ID: 280-94178-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0019	J B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	0.18	J B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Chromium	0.00051	J	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.00037	J	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-94178-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-94178-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-94178-1	PNMW-13	Water	02/21/17 13:20	02/23/17 11:20
280-94178-2	PNMW-14	Water	02/21/17 15:20	02/23/17 11:20
280-94178-3	PNMW-1B	Water	02/20/17 14:15	02/23/17 11:20
280-94178-4	PNMW-2B	Water	02/21/17 11:20	02/23/17 11:20
280-94178-5	PNMW-15	Water	02/22/17 12:40	02/23/17 11:20
280-94178-6	PNMW-16	Water	02/22/17 14:40	02/23/17 11:20
280-94178-8	PNMW-13D	Water	02/21/17 13:45	02/23/17 11:20
280-94178-9	PNMW-2BEB	Water	02/21/17 12:00	02/23/17 11:20

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

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.25		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 14:53	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.074	J	0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 14:57	1

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 15:01	1

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.051	J	0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 15:06	1

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.36		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 15:10	1

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.36		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 15:35	1

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.24		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 16:06	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 16:19	1

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

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20
Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0021	B	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 11:36	1

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

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0014	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 11:36	1
Barium	0.055	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 11:36	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 11:36	1
Calcium	34	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 11:36	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 11:36	1
Cobalt	0.00086	J	0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 11:36	1
Chromium	0.0026		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 11:36	1
Molybdenum	0.0077	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 11:36	1
Lead	0.0013		0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 11:36	1
Selenium	0.0018	J	0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 11:36	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 11:36	1
Lithium	0.057		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 11:36	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00086	J B	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 11:41	1
Arsenic	0.0039	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 11:41	1
Barium	0.17	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 11:41	1
Beryllium	0.00052	J	0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 11:41	1
Calcium	53	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 11:41	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 11:41	1
Cobalt	0.0032		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 11:41	1
Chromium	0.017		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 11:41	1
Molybdenum	0.0068	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 11:41	1
Lead	0.0057		0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 11:41	1
Selenium	0.0037	J	0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 11:41	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 11:41	1
Lithium	0.041		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 11:41	1

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00040	J B	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 11:57	1
Arsenic	0.0016	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 11:57	1
Barium	0.044	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 11:57	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 11:57	1
Calcium	120	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 11:57	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 11:57	1
Cobalt	ND		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 11:57	1
Chromium	0.0020		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 11:57	1
Molybdenum	0.0043	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 11:57	1
Lead	0.00034	J	0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 11:57	1
Selenium	0.017		0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 11:57	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 11:57	1
Lithium	0.088		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 11:57	1

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

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00028	J B	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 12:02	1
Arsenic	0.00061	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 12:02	1
Barium	0.18	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 12:02	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 12:02	1
Calcium	96	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 12:02	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 12:02	1
Cobalt	ND		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 12:02	1
Chromium	0.0024		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 12:02	1
Molybdenum	0.0030	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 12:02	1
Lead	0.00024	J	0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 12:02	1
Selenium	0.0027	J	0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 12:02	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 12:02	1
Lithium	0.039		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 12:02	1

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 12:06	1
Arsenic	0.0017	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 12:06	1
Barium	0.050	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 12:06	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 12:06	1
Calcium	190	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 12:06	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 12:06	1
Cobalt	0.00091	J	0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 12:06	1
Chromium	0.0020		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 12:06	1
Molybdenum	0.0029	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 12:06	1
Lead	0.00092	J	0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 12:06	1
Selenium	0.012		0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 12:06	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 12:06	1
Lithium	0.15		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 12:06	1

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00035	J B	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 12:10	1
Arsenic	0.0037	J	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 12:10	1
Barium	0.13	B	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 12:10	1
Beryllium	0.00048	J	0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 12:10	1
Calcium	250	B	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 12:10	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 12:10	1
Cobalt	0.0076		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 12:10	1
Chromium	0.020		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 12:10	1
Molybdenum	0.0058	J	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 12:10	1
Lead	0.0068		0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 12:10	1
Selenium	0.0024	J	0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 12:10	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 12:10	1
Lithium	0.18		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 12:10	1

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

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 12:18	1
Arsenic	**0.00088**	**J**	0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 12:18	1
Barium	**0.039**	**B**	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 12:18	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 12:18	1
Calcium	**32**	**B**	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 12:18	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 12:18	1
Cobalt	**0.00034**	**J**	0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 12:18	1
Chromium	**0.00062**	**J**	0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 12:18	1
Molybdenum	**0.0063**	**J**	0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 12:18	1
Lead	**0.00038**	**J**	0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 12:18	1
Selenium	ND		0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 12:18	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 12:18	1
Lithium	**0.056**		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 12:18	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 12:23	1
Arsenic	ND		0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 12:23	1
Barium	**0.0019**	**J B**	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 12:23	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 12:23	1
Calcium	**0.18**	**J B**	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 12:23	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 12:23	1
Cobalt	ND		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 12:23	1
Chromium	**0.00051**	**J**	0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 12:23	1
Molybdenum	ND		0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 12:23	1
Lead	**0.00037**	**J**	0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 12:23	1
Selenium	ND		0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 12:23	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 12:23	1
Lithium	ND		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 12:23	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:26	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:28	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:30	1

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:32	1

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:34	1

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:41	1

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:46	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 17:48	1

General Chemistry

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			02/24/17 12:16	1
Temperature	22.0	HF	1.0	1.0	Degrees C			02/24/17 12:16	1
Chloride	1.7	J	3.0	0.25	mg/L			02/28/17 20:52	1
Fluoride	1.5		0.50	0.060	mg/L			02/28/17 20:52	1
Sulfate	37		5.0	0.23	mg/L			02/28/17 20:52	1
Total Dissolved Solids (TDS)	340		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	6.8		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			02/24/17 12:21	1

General Chemistry (Continued)

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	22.1	HF	1.0	1.0	Degrees C			02/24/17 12:21	1
Chloride	2.0	J	3.0	0.25	mg/L			02/28/17 21:43	1
Fluoride	1.2		0.50	0.060	mg/L			02/28/17 21:43	1
Sulfate	26		5.0	0.23	mg/L			02/28/17 21:43	1
Total Dissolved Solids (TDS)	240		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	82		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			02/24/17 12:37	1
Temperature	23.0	HF	1.0	1.0	Degrees C			02/24/17 12:37	1
Chloride	68		3.0	0.25	mg/L			02/28/17 22:50	1
Fluoride	0.94		0.50	0.060	mg/L			02/28/17 22:50	1
Sulfate	300		25	1.2	mg/L			02/28/17 23:07	5
Total Dissolved Solids (TDS)	950		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	4.8		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			02/24/17 12:42	1
Temperature	22.8	HF	1.0	1.0	Degrees C			02/24/17 12:42	1
Chloride	14		3.0	0.25	mg/L			02/28/17 23:24	1
Fluoride	0.54		0.50	0.060	mg/L			02/28/17 23:24	1
Sulfate	28		5.0	0.23	mg/L			02/28/17 23:24	1
Total Dissolved Solids (TDS)	510		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			02/24/17 12:47	1
Temperature	22.5	HF	1.0	1.0	Degrees C			02/24/17 12:47	1
Chloride	3.8		3.0	0.25	mg/L			02/28/17 23:40	1
Fluoride	0.31	J	0.50	0.060	mg/L			02/28/17 23:40	1
Sulfate	950		25	1.2	mg/L			02/28/17 23:57	5
Total Dissolved Solids (TDS)	1700		20	9.4	mg/L			02/24/17 11:00	1
Total Suspended Solids	29		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
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			02/24/17 12:52	1
Temperature	22.4	HF	1.0	1.0	Degrees C			02/24/17 12:52	1
Chloride	3.1		3.0	0.25	mg/L			03/01/17 00:48	1

General Chemistry (Continued)

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.31**	**J**	0.50	0.060	mg/L			03/01/17 00:48	1
Sulfate	**1100**	**B**	50	2.3	mg/L			03/01/17 13:17	10
Total Dissolved Solids (TDS)	**2000**		20	9.4	mg/L			02/24/17 11:00	1
Total Suspended Solids	**120**		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**8.0**	**HF**	0.1	0.1	SU			02/24/17 13:02	1
Temperature	**22.6**	**HF**	1.0	1.0	Degrees C			02/24/17 13:02	1
Chloride	**1.6**	**J**	3.0	0.25	mg/L			03/01/17 01:55	1
Fluoride	**1.5**		0.50	0.060	mg/L			03/01/17 01:55	1
Sulfate	**36**		5.0	0.23	mg/L			03/01/17 01:55	1
Total Dissolved Solids (TDS)	**350**		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	**34**		4.0	1.1	mg/L			02/27/17 14:45	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.0**	**HF**	0.1	0.1	SU			03/01/17 12:27	1
Temperature	**23.0**	**HF**	1.0	1.0	Degrees C			03/01/17 12:27	1
Chloride	ND		3.0	0.25	mg/L			03/01/17 02:12	1
Fluoride	ND		0.50	0.060	mg/L			03/01/17 02:12	1
Sulfate	ND		5.0	0.23	mg/L			03/01/17 02:12	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			02/24/17 11:00	1
Total Suspended Solids	**3.2**	**J**	4.0	1.1	mg/L			02/27/17 14:45	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0469	U	0.0783	0.0785	1.00	0.137	pCi/L	03/01/17 13:17	03/23/17 12:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.7*		*40 - 110*	*03/01/17 13:17*	*03/23/17 12:56*	*1*

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.145**		0.0836	0.0846	1.00	0.104	pCi/L	03/01/17 13:17	03/23/17 12:57	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110	03/01/17 13:17	03/23/17 12:57	1

Client Sample ID: PNMW-1B — **Lab Sample ID: 280-94178-3**
Date Collected: 02/20/17 14:15 — **Matrix: Water**
Date Received: 02/23/17 11:20

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.327		0.112	0.116	1.00	0.104	pCi/L	03/01/17 13:17	03/23/17 12:57	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110	03/01/17 13:17	03/23/17 12:57	1

Client Sample ID: PNMW-2B — **Lab Sample ID: 280-94178-4**
Date Collected: 02/21/17 11:20 — **Matrix: Water**
Date Received: 02/23/17 11:20

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.181		0.102	0.103	1.00	0.135	pCi/L	03/01/17 13:17	03/23/17 12:57	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110	03/01/17 13:17	03/23/17 12:57	1

Client Sample ID: PNMW-15 — **Lab Sample ID: 280-94178-5**
Date Collected: 02/22/17 12:40 — **Matrix: Water**
Date Received: 02/23/17 11:20

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.399		0.190	0.194	1.00	0.217	pCi/L	03/01/17 13:17	03/23/17 12:57	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110	03/01/17 13:17	03/23/17 12:57	1

Client Sample ID: PNMW-16 — **Lab Sample ID: 280-94178-6**
Date Collected: 02/22/17 14:40 — **Matrix: Water**
Date Received: 02/23/17 11:20

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.398		0.209	0.212	1.00	0.266	pCi/L	03/01/17 13:17	03/23/17 12:57	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110	03/01/17 13:17	03/23/17 12:57	1

Client Sample ID: PNMW-13D — **Lab Sample ID: 280-94178-8**
Date Collected: 02/21/17 13:45 — **Matrix: Water**
Date Received: 02/23/17 11:20

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.127		0.0880	0.0887	1.00	0.120	pCi/L	03/01/17 13:17	03/23/17 14:50	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110	03/01/17 13:17	03/23/17 14:50	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0213	U	0.0614	0.0614	1.00	0.116	pCi/L	03/01/17 13:17	03/23/17 14:50	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110	03/01/17 13:17	03/23/17 14:50	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.422**		0.238	0.241	1.00	0.356	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110	03/01/17 14:03	03/15/17 13:06	1
Y Carrier	92.3		40 - 110	03/01/17 14:03	03/15/17 13:06	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.244	U	0.232	0.233	1.00	0.375	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110	03/01/17 14:03	03/15/17 13:06	1
Y Carrier	86.4		40 - 110	03/01/17 14:03	03/15/17 13:06	1

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.450**		0.251	0.254	1.00	0.377	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110	03/01/17 14:03	03/15/17 13:06	1
Y Carrier	81.9		40 - 110	03/01/17 14:03	03/15/17 13:06	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.288	U	0.250	0.251	1.00	0.400	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*
Y Carrier	*82.6*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.348	U	0.436	0.437	1.00	0.723	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.8*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*
Y Carrier	*84.1*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.345	U	0.448	0.449	1.00	0.744	pCi/L	03/01/17 14:03	03/15/17 13:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.5*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*
Y Carrier	*83.4*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:06*	*1*

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.301	U	0.238	0.240	1.00	0.375	pCi/L	03/01/17 14:03	03/15/17 13:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.7*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:07*	*1*
Y Carrier	*80.7*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:07*	*1*

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.169	U	0.182	0.182	1.00	0.357	pCi/L	03/01/17 14:03	03/15/17 13:09	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110	03/01/17 14:03	03/15/17 13:09	1
Y Carrier	89.7		40 - 110	03/01/17 14:03	03/15/17 13:09	1

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

Client Sample ID: PNMW-13
Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.469		0.250	0.253	5.00	0.356	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-14
Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.389		0.246	0.248	5.00	0.375	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-1B
Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.777		0.275	0.279	5.00	0.377	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-2B
Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.469		0.270	0.272	5.00	0.400	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-15
Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.747		0.476	0.478	5.00	0.723	pCi/L		03/24/17 16:20	1

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

Client Sample ID: PNMW-16
Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.743	U	0.494	0.496	5.00	0.744	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-13D
Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.427**		0.254	0.256	5.00	0.375	pCi/L		03/24/17 16:20	1

Client Sample ID: PNMW-2BEB
Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.147	U	0.192	0.192	5.00	0.357	pCi/L		03/24/17 16:20	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-269136/1-A
Matrix: Water
Analysis Batch: 269389

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		03/03/17 14:00	03/06/17 14:16	1

Lab Sample ID: LCS 240-269136/2-A
Matrix: Water
Analysis Batch: 269389

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269136

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 240-269136/1-A
Matrix: Water
Analysis Batch: 269405

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000984	J	0.0020	0.00027	mg/L		03/03/17 14:00	03/06/17 11:08	1
Arsenic	ND		0.0050	0.00035	mg/L		03/03/17 14:00	03/06/17 11:08	1
Barium	0.00113	J	0.0050	0.00052	mg/L		03/03/17 14:00	03/06/17 11:08	1
Beryllium	ND		0.0010	0.00040	mg/L		03/03/17 14:00	03/06/17 11:08	1
Calcium	0.289	J	1.0	0.043	mg/L		03/03/17 14:00	03/06/17 11:08	1
Cadmium	ND		0.0010	0.00031	mg/L		03/03/17 14:00	03/06/17 11:08	1
Cobalt	ND		0.0010	0.00013	mg/L		03/03/17 14:00	03/06/17 11:08	1
Chromium	ND		0.0020	0.00026	mg/L		03/03/17 14:00	03/06/17 11:08	1
Molybdenum	ND		0.010	0.00051	mg/L		03/03/17 14:00	03/06/17 11:08	1
Lead	ND		0.0010	0.00016	mg/L		03/03/17 14:00	03/06/17 11:08	1
Selenium	ND		0.0050	0.00048	mg/L		03/03/17 14:00	03/06/17 11:08	1
Thallium	ND		0.0010	0.00028	mg/L		03/03/17 14:00	03/06/17 11:08	1
Lithium	ND		0.0080	0.00016	mg/L		03/03/17 14:00	03/06/17 11:08	1

Lab Sample ID: LCS 240-269136/3-A
Matrix: Water
Analysis Batch: 269405

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0940		mg/L		94	80 - 120
Arsenic	1.00	0.930		mg/L		93	80 - 120
Barium	1.00	0.930		mg/L		93	80 - 120
Beryllium	1.00	0.950		mg/L		95	80 - 120
Calcium	10.0	11.0		mg/L		110	80 - 120
Cadmium	1.00	1.07		mg/L		107	80 - 120
Cobalt	1.00	1.02		mg/L		102	80 - 120
Chromium	1.00	0.990		mg/L		99	80 - 120
Molybdenum	0.100	0.0965		mg/L		97	80 - 120
Lead	1.00	1.04		mg/L		104	80 - 120
Selenium	1.00	0.964		mg/L		96	80 - 120
Thallium	0.250	0.249		mg/L		100	80 - 120
Lithium	0.100	0.105		mg/L		105	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-364783/1-A
Matrix: Water
Analysis Batch: 365331

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364783

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		03/13/17 10:54	03/13/17 16:53	1

Lab Sample ID: LCS 280-364783/2-A
Matrix: Water
Analysis Batch: 365331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00420		mg/L		84	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-363392/4
Matrix: Water
Analysis Batch: 363392

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

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

Lab Sample ID: LCS 280-363946/4
Matrix: Water
Analysis Batch: 363946

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 280-363711/6
Matrix: Water
Analysis Batch: 363711

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	0.25	mg/L			02/28/17 11:36	1
Fluoride	ND		0.50	0.060	mg/L			02/28/17 11:36	1
Sulfate	ND		5.0	0.23	mg/L			02/28/17 11:36	1

Lab Sample ID: LCS 280-363711/4
Matrix: Water
Analysis Batch: 363711

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	104		mg/L		104	90 - 110
Fluoride	5.00	5.26		mg/L		105	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

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

Lab Sample ID: LCSD 280-363711/5
Matrix: Water
Analysis Batch: 363711

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	104		mg/L		104	90 - 110	0	10
Fluoride	5.00	5.26		mg/L		105	90 - 110	0	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-363711/3
Matrix: Water
Analysis Batch: 363711

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.59	J	mg/L		104	50 - 150
Fluoride	0.200	0.198	J	mg/L		99	50 - 150
Sulfate	2.50	2.36	J	mg/L		94	50 - 150

Lab Sample ID: 280-94178-2 MS
Matrix: Water
Analysis Batch: 363711

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.0	J	25.0	29.0		mg/L		108	80 - 120
Fluoride	1.2		5.00	6.16		mg/L		100	80 - 120
Sulfate	26		25.0	51.7		mg/L		105	80 - 120

Lab Sample ID: 280-94178-2 MSD
Matrix: Water
Analysis Batch: 363711

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.0	J	25.0	29.4		mg/L		110	80 - 120	1	20
Fluoride	1.2		5.00	6.22		mg/L		101	80 - 120	1	20
Sulfate	26		25.0	52.0		mg/L		106	80 - 120	1	20

Lab Sample ID: 280-94178-2 DU
Matrix: Water
Analysis Batch: 363711

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	2.0	J	2.00	J	mg/L		0.06	15
Fluoride	1.2		1.15		mg/L		0.1	15
Sulfate	26		25.5		mg/L		0.06	15

Lab Sample ID: MB 280-363866/6
Matrix: Water
Analysis Batch: 363866

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.501	J	5.0	0.23	mg/L			03/01/17 10:39	1

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

Lab Sample ID: LCS 280-363866/4
Matrix: Water
Analysis Batch: 363866

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

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

Lab Sample ID: LCSD 280-363866/5
Matrix: Water
Analysis Batch: 363866

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	98.3		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-363866/3
Matrix: Water
Analysis Batch: 363866

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	2.50	2.20	J	mg/L		88	50 - 150

Lab Sample ID: 280-94178-6 MS
Matrix: Water
Analysis Batch: 363866

Client Sample ID: PNMW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	1100	B	250	1360	4	mg/L		104	80 - 120

Lab Sample ID: 280-94178-6 MSD
Matrix: Water
Analysis Batch: 363866

Client Sample ID: PNMW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	1100	B	250	1360	4	mg/L		104	80 - 120	0	20

Lab Sample ID: 280-94178-6 DU
Matrix: Water
Analysis Batch: 363866

Client Sample ID: PNMW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	1100	B	1090		mg/L		0.3	15

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

Lab Sample ID: MB 280-363355/1
Matrix: Water
Analysis Batch: 363355

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			02/24/17 11:00	1

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

Lab Sample ID: LCS 280-363355/2
Matrix: Water
Analysis Batch: 363355

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	499		mg/L		100	86 - 110

Lab Sample ID: 280-94178-1 DU
Matrix: Water
Analysis Batch: 363355

Client Sample ID: PNMW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	340		353		mg/L		4	10

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

Lab Sample ID: MB 280-363576/2
Matrix: Water
Analysis Batch: 363576

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			02/27/17 14:45	1

Lab Sample ID: LCS 280-363576/1
Matrix: Water
Analysis Batch: 363576

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	99.2		mg/L		99	86 - 114

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-295320/1-A
Matrix: Water
Analysis Batch: 299256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295320

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.001249	U	0.0786	0.0786	1.00	0.166	pCi/L	03/01/17 13:17	03/23/17 10:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.9*		*40 - 110*	*03/01/17 13:17*	*03/23/17 10:50*	*1*

Lab Sample ID: LCS 160-295320/2-A
Matrix: Water
Analysis Batch: 299256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295320

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	15.2	14.23		1.52	1.00	0.148	pCi/L	94	68 - 137

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.3*		*40 - 110*

Lab Sample ID: 280-94178-1 DU
Matrix: Water
Analysis Batch: 299256

Client Sample ID: PNMW-13
Prep Type: Total/NA
Prep Batch: 295320

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.0469	U		0.1601		0.0934	1.00	0.120	pCi/L			0.66	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-295323/1-A
Matrix: Water
Analysis Batch: 297724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295323

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4313	U	0.320	0.323	1.00	0.500	pCi/L	03/01/17 14:03	03/15/17 13:05	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.9*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:05*	*1*
Y Carrier	*86.7*		*40 - 110*	*03/01/17 14:03*	*03/15/17 13:05*	*1*

Lab Sample ID: LCS 160-295323/2-A
Matrix: Water
Analysis Batch: 297724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295323

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			18.3	18.57		1.98	1.00	0.444	pCi/L	102	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.3*		*40 - 110*
Y Carrier	*95.3*		*40 - 110*

Lab Sample ID: 280-94178-1 DU
Matrix: Water
Analysis Batch: 297724

Client Sample ID: PNMW-13
Prep Type: Total/NA
Prep Batch: 295323

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.422			0.1953	U	0.215	1.00	0.352	pCi/L			0.50	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*
Y Carrier	*88.6*		*40 - 110*

Metals

Prep Batch: 269136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total Recoverable	Water	3005A	
280-94178-2	PNMW-14	Total Recoverable	Water	3005A	
280-94178-3	PNMW-1B	Total Recoverable	Water	3005A	
280-94178-4	PNMW-2B	Total Recoverable	Water	3005A	
280-94178-5	PNMW-15	Total Recoverable	Water	3005A	
280-94178-6	PNMW-16	Total Recoverable	Water	3005A	
280-94178-8	PNMW-13D	Total Recoverable	Water	3005A	
280-94178-9	PNMW-2BEB	Total Recoverable	Water	3005A	
MB 240-269136/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-269136/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-269136/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 269389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total Recoverable	Water	6010C	269136
280-94178-2	PNMW-14	Total Recoverable	Water	6010C	269136
280-94178-3	PNMW-1B	Total Recoverable	Water	6010C	269136
280-94178-4	PNMW-2B	Total Recoverable	Water	6010C	269136
280-94178-5	PNMW-15	Total Recoverable	Water	6010C	269136
280-94178-6	PNMW-16	Total Recoverable	Water	6010C	269136
280-94178-8	PNMW-13D	Total Recoverable	Water	6010C	269136
280-94178-9	PNMW-2BEB	Total Recoverable	Water	6010C	269136
MB 240-269136/1-A	Method Blank	Total Recoverable	Water	6010C	269136
LCS 240-269136/2-A	Lab Control Sample	Total Recoverable	Water	6010C	269136

Analysis Batch: 269405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total Recoverable	Water	6020A	269136
280-94178-2	PNMW-14	Total Recoverable	Water	6020A	269136
280-94178-3	PNMW-1B	Total Recoverable	Water	6020A	269136
280-94178-4	PNMW-2B	Total Recoverable	Water	6020A	269136
280-94178-5	PNMW-15	Total Recoverable	Water	6020A	269136
280-94178-6	PNMW-16	Total Recoverable	Water	6020A	269136
280-94178-8	PNMW-13D	Total Recoverable	Water	6020A	269136
280-94178-9	PNMW-2BEB	Total Recoverable	Water	6020A	269136
MB 240-269136/1-A	Method Blank	Total Recoverable	Water	6020A	269136
LCS 240-269136/3-A	Lab Control Sample	Total Recoverable	Water	6020A	269136

Prep Batch: 364783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	7470A	
280-94178-2	PNMW-14	Total/NA	Water	7470A	
280-94178-3	PNMW-1B	Total/NA	Water	7470A	
280-94178-4	PNMW-2B	Total/NA	Water	7470A	
280-94178-5	PNMW-15	Total/NA	Water	7470A	
280-94178-6	PNMW-16	Total/NA	Water	7470A	
280-94178-8	PNMW-13D	Total/NA	Water	7470A	
280-94178-9	PNMW-2BEB	Total/NA	Water	7470A	
MB 280-364783/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-364783/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals (Continued)

Analysis Batch: 365331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	7470A	364783
280-94178-2	PNMW-14	Total/NA	Water	7470A	364783
280-94178-3	PNMW-1B	Total/NA	Water	7470A	364783
280-94178-4	PNMW-2B	Total/NA	Water	7470A	364783
280-94178-5	PNMW-15	Total/NA	Water	7470A	364783
280-94178-6	PNMW-16	Total/NA	Water	7470A	364783
280-94178-8	PNMW-13D	Total/NA	Water	7470A	364783
280-94178-9	PNMW-2BEB	Total/NA	Water	7470A	364783
MB 280-364783/1-A	Method Blank	Total/NA	Water	7470A	364783
LCS 280-364783/2-A	Lab Control Sample	Total/NA	Water	7470A	364783

General Chemistry

Analysis Batch: 363355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	SM 2540C	
280-94178-2	PNMW-14	Total/NA	Water	SM 2540C	
280-94178-3	PNMW-1B	Total/NA	Water	SM 2540C	
280-94178-4	PNMW-2B	Total/NA	Water	SM 2540C	
280-94178-5	PNMW-15	Total/NA	Water	SM 2540C	
280-94178-6	PNMW-16	Total/NA	Water	SM 2540C	
280-94178-8	PNMW-13D	Total/NA	Water	SM 2540C	
280-94178-9	PNMW-2BEB	Total/NA	Water	SM 2540C	
MB 280-363355/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-363355/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-94178-1 DU	PNMW-13	Total/NA	Water	SM 2540C	

Analysis Batch: 363392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	9040B	
280-94178-2	PNMW-14	Total/NA	Water	9040B	
280-94178-3	PNMW-1B	Total/NA	Water	9040B	
280-94178-4	PNMW-2B	Total/NA	Water	9040B	
280-94178-5	PNMW-15	Total/NA	Water	9040B	
280-94178-6	PNMW-16	Total/NA	Water	9040B	
280-94178-8	PNMW-13D	Total/NA	Water	9040B	
LCS 280-363392/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 363576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	SM 2540D	
280-94178-2	PNMW-14	Total/NA	Water	SM 2540D	
280-94178-3	PNMW-1B	Total/NA	Water	SM 2540D	
280-94178-4	PNMW-2B	Total/NA	Water	SM 2540D	
280-94178-5	PNMW-15	Total/NA	Water	SM 2540D	
280-94178-6	PNMW-16	Total/NA	Water	SM 2540D	
280-94178-8	PNMW-13D	Total/NA	Water	SM 2540D	
280-94178-9	PNMW-2BEB	Total/NA	Water	SM 2540D	
MB 280-363576/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-363576/1	Lab Control Sample	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 363711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	9056A	
280-94178-2	PNMW-14	Total/NA	Water	9056A	
280-94178-3	PNMW-1B	Total/NA	Water	9056A	
280-94178-3	PNMW-1B	Total/NA	Water	9056A	
280-94178-4	PNMW-2B	Total/NA	Water	9056A	
280-94178-5	PNMW-15	Total/NA	Water	9056A	
280-94178-5	PNMW-15	Total/NA	Water	9056A	
280-94178-6	PNMW-16	Total/NA	Water	9056A	
280-94178-8	PNMW-13D	Total/NA	Water	9056A	
280-94178-9	PNMW-2BEB	Total/NA	Water	9056A	
MB 280-363711/6	Method Blank	Total/NA	Water	9056A	
LCS 280-363711/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-363711/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-363711/3	Lab Control Sample	Total/NA	Water	9056A	
280-94178-2 MS	PNMW-14	Total/NA	Water	9056A	
280-94178-2 MSD	PNMW-14	Total/NA	Water	9056A	
280-94178-2 DU	PNMW-14	Total/NA	Water	9056A	

Analysis Batch: 363866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-6	PNMW-16	Total/NA	Water	9056A	
MB 280-363866/6	Method Blank	Total/NA	Water	9056A	
LCS 280-363866/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-363866/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-363866/3	Lab Control Sample	Total/NA	Water	9056A	
280-94178-6 MS	PNMW-16	Total/NA	Water	9056A	
280-94178-6 MSD	PNMW-16	Total/NA	Water	9056A	
280-94178-6 DU	PNMW-16	Total/NA	Water	9056A	

Analysis Batch: 363946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-9	PNMW-2BEB	Total/NA	Water	9040B	
LCS 280-363946/4	Lab Control Sample	Total/NA	Water	9040B	

Rad

Prep Batch: 295320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	PrecSep-21	
280-94178-2	PNMW-14	Total/NA	Water	PrecSep-21	
280-94178-3	PNMW-1B	Total/NA	Water	PrecSep-21	
280-94178-4	PNMW-2B	Total/NA	Water	PrecSep-21	
280-94178-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-94178-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-94178-8	PNMW-13D	Total/NA	Water	PrecSep-21	
280-94178-9	PNMW-2BEB	Total/NA	Water	PrecSep-21	
MB 160-295320/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-295320/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-94178-1 DU	PNMW-13	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 295323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-94178-1	PNMW-13	Total/NA	Water	PrecSep_0	
280-94178-2	PNMW-14	Total/NA	Water	PrecSep_0	
280-94178-3	PNMW-1B	Total/NA	Water	PrecSep_0	
280-94178-4	PNMW-2B	Total/NA	Water	PrecSep_0	
280-94178-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-94178-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-94178-8	PNMW-13D	Total/NA	Water	PrecSep_0	
280-94178-9	PNMW-2BEB	Total/NA	Water	PrecSep_0	
MB 160-295323/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-295323/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-94178-1 DU	PNMW-13	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-94178-1

Client Sample ID: PNMW-13

Date Collected: 02/21/17 13:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 14:53	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 11:36	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:26	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:16	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	02/28/17 20:52	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.35 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:56	MLK	TAL SL
Total/NA	Prep	PrecSep_0			999.35 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Client Sample ID: PNMW-14

Date Collected: 02/21/17 15:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 14:57	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 11:41	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:28	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:21	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	02/28/17 21:43	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.07 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:57	MLK	TAL SL
Total/NA	Prep	PrecSep_0			1000.07 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Client Sample ID: PNMW-1B

Date Collected: 02/20/17 14:15
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 15:01	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 11:57	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:30	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:37	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	02/28/17 22:50	AFB	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	363711	02/28/17 23:07	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.13 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:57	MLK	TAL SL
Total/NA	Prep	PrecSep_0			1000.13 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 02/21/17 11:20
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 15:06	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 12:02	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:32	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:42	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	02/28/17 23:24	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.47 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:57	MLK	TAL SL
Total/NA	Prep	PrecSep_0			1000.47 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-94178-1

Client Sample ID: PNMW-15

Date Collected: 02/22/17 12:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-5

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	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 15:10	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 12:06	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:34	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:47	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	02/28/17 23:40	AFB	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	363711	02/28/17 23:57	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			500.06 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:57	MLK	TAL SL
Total/NA	Prep	PrecSep_0			500.06 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Client Sample ID: PNMW-16

Date Collected: 02/22/17 14:40
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-6

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	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 15:35	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 12:10	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:41	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 12:52	CCJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	363866	03/01/17 13:17	AFB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	03/01/17 00:48	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.88 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 12:57	MLK	TAL SL
Total/NA	Prep	PrecSep_0			499.88 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:06	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-94178-1

Client Sample ID: PNMW-13D

Date Collected: 02/21/17 13:45
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 16:06	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 12:18	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:46	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363392	02/24/17 13:02	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	03/01/17 01:55	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.03 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 14:50	MLK	TAL SL
Total/NA	Prep	PrecSep_0			1000.03 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297724	03/15/17 13:07	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Client Sample ID: PNMW-2BEB

Date Collected: 02/21/17 12:00
Date Received: 02/23/17 11:20

Lab Sample ID: 280-94178-9

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	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			269389	03/06/17 16:19	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	269136	03/03/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			269405	03/06/17 12:23	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	364783	03/13/17 10:54	TEB	TAL DEN
Total/NA	Analysis	7470A		1			365331	03/13/17 17:48	TEB	TAL DEN
Total/NA	Analysis	9040B		1			363946	03/01/17 12:27	CCJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	363711	03/01/17 02:12	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	363355	02/24/17 11:00	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	363576	02/27/17 14:45	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.86 mL	1.0 g	295320	03/01/17 13:17	BME	TAL SL
Total/NA	Analysis	9315		1			299256	03/23/17 14:50	MLK	TAL SL
Total/NA	Prep	PrecSep_0			999.86 mL	1.0 g	295323	03/01/17 14:03	BME	TAL SL
Total/NA	Analysis	9320		1			297725	03/15/17 13:09	MLK	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			299677	03/24/17 16:20	MLK	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-94178-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-94178-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Justin Bills	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 1
Client Contact: Anna Lundin	Phone: 518-331-7027	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: 720-633-2380(Tel)	PO #: DEN-001			
Email: anna.lundin@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

Analysis Requested

280-94178 Chain of Custody

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 - Na2S2SO3, 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)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-13	2/21/17	1320	G	Water		N	1	2	1	1	2	7	
PNMW-14	2/21/17	1520	G	Water		N	1	2	1	1	2	7	
PNMW-1B	2/20/17		G	Water		N	1	2	1	1	2	7	
PNMW-2B	2/21/17	1120	G	Water		N	1	2	1	1	2	7	
~~PNMW-6B~~ 15	2/22/17	1240	G	Water		N	1	2	1	1	2	7	
~~PNMW-11~~ 16	2/22/17	1440	G	Water		N	1	2	1	1	2	7	
~~PNMW-12~~ 17	2/22/17	1630	G	Water		N	1	2	1	1	2	7	
~~Field Duplicate~~ PNMW-13D	2/21/17	1345	G	Water		N	1	2	1	1	2	7	
~~Equipment Blank~~ PNMW-2BEB	2/21/17	1200	G	Water		N	1	2	1	1	2	7	

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		2/23/17 1120		Received by:	2-23-17 1120	TAL
	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: 1.7, 0.7, 0.3, 2.1 + 0.0 IR#7 transferred by JS 2/23/17

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

Chain of Custody Record

280-94178 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie	COC No: 280-389068.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Page: Page 1 of 1
Address: 13715 Rider Trail North, ,	Due Date Requested: 3/24/2017		Job #: 280-94178-1
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 CCR - Pawnee Station	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-13 (280-94178-1)	2/21/17	13:20 Mountain		Water			X	X	X	2	
PNMW-14 (280-94178-2)	2/21/17	15:20 Mountain		Water			X	X	X	2	
PNMW-1B (280-94178-3)	2/20/17	14:15 Mountain		Water			X	X	X	2	
PNMW-2B (280-94178-4)	2/21/17	11:20 Mountain		Water			X	X	X	2	
PNMW-15 (280-94178-5)	2/22/17	12:40 Mountain		Water			X	X	X	2	
PNMW-16 (280-94178-6)	2/22/17	14:40 Mountain		Water			X	X	X	2	
PNMW-17 (280-94178-7)	2/22/17	16:30 Mountain		Water			X	X	X	2	
PNMW-13D (280-94178-8)	2/21/17	13:45 Mountain		Water			X	X	X	2	
PNMW-2BEB (280-94178-9)	2/21/17	12:00 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: 2/24/17 1510	Company	Received by:	Date/Time: 2.25.17 0825	Company TAST	
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:

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

Chain of Custody Record



280-94178 Chain of Custody

estAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie		C No: 0-389072.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-94178-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 3/20/2017			
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 CCR - Pawnee Station	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-13 (280-94178-1)	2/21/17	13:20 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-94178-2)	2/21/17	15:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-1B (280-94178-3)	2/20/17	14:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-94178-4)	2/21/17	11:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-94178-5)	2/22/17	12:40 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-94178-6)	2/22/17	14:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-94178-7)	2/22/17	16:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-13D (280-94178-8)	2/21/17	13:45 Mountain		Water			X	X	1	Use Collision Cell
PNMW-2BEB (280-94178-9)	2/21/17	12:00 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: 2/24/17 1510	Company	Received by: Jill Clark	Date/Time: 2.25.17 0825	Company TASR
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:

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-94178-1

Login Number: 94178
List Number: 1
Creator: True, Joshua A

List Source: 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.	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: 280-94178-1

Login Number: 94178
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 02/25/17 10:55 AM

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.	N/A	
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	20.0,20.0,20.0
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.	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

TestAmerica Job ID: 280-94178-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-94178-1	PNMW-13	86.7
280-94178-1 DU	PNMW-13	92.0
280-94178-2	PNMW-14	95.3
280-94178-3	PNMW-1B	96.5
280-94178-4	PNMW-2B	90.3
280-94178-5	PNMW-15	96.8
280-94178-6	PNMW-16	93.5
280-94178-8	PNMW-13D	86.7
280-94178-9	PNMW-2BEB	95.3
LCS 160-295320/2-A	Lab Control Sample	90.3
MB 160-295320/1-A	Method Blank	82.9

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-94178-1	PNMW-13	86.7	92.3
280-94178-1 DU	PNMW-13	92.0	88.6
280-94178-2	PNMW-14	95.3	86.4
280-94178-3	PNMW-1B	96.5	81.9
280-94178-4	PNMW-2B	90.3	82.6
280-94178-5	PNMW-15	96.8	84.1
280-94178-6	PNMW-16	93.5	83.4
280-94178-8	PNMW-13D	86.7	80.7
280-94178-9	PNMW-2BEB	95.3	89.7
LCS 160-295323/2-A	Lab Control Sample	90.3	95.3
MB 160-295323/1-A	Method Blank	82.9	86.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

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

TestAmerica Job ID: 280-95159-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/15/2018 3:22:12 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-95159-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.

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: 280-95159-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-95159-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 3/24/2017 at 8:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.2ºC, 0.4ºC and 1.4ºC.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 03/29/2017 and analyzed on 04/04/2017.

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 (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 03/29/2017 and analyzed on 03/31/2017.

Barium, Calcium and Lead were detected in method blank MB 240-272410/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have 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 (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/07/2017.

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

Job ID: 280-95159-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

TOTAL DISSOLVED SOLIDS

Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 03/28/2017.

Total Dissolved Solids (TDS) exceeded the RPD limit for the duplicate of sample EQUIPMENT BLANK (280-95159-9). Refer to the QC report for details.

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

TOTAL SUSPENDED SOLIDS

Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 03/27/2017.

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

CORROSIVITY (PH)

Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 03/30/2017 and 04/04/2017.

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

ANIONS (28 DAYS)

Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 04/13/2017 and 04/14/2017.

Samples PNMW-1B (280-95159-1)[5X], PNMW-15 (280-95159-5)[10X], PNMW-16 (280-95159-6)[10X], and FIELD DUPLICATE (280-95159-8)[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 (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 03/31/2017 and analyzed on 04/21/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 160-300834. 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

Samples PNMW-1B (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 03/30/2017 and analyzed on 04/14/2017.

The following samples were prepped at a reduced aliquot due to the cloudy appearance of the samples: PNMW-14 (280-95159-4).

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 160-300697. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Job ID: 280-95159-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

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 (280-95159-1), PNMW-2B (280-95159-2), PNMW-13 (280-95159-3), PNMW-14 (280-95159-4), PNMW-15 (280-95159-5), PNMW-16 (280-95159-6), FIELD DUPLICATE (280-95159-8) and EQUIPMENT BLANK (280-95159-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 04/21/2017.

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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-95159-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.25		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0023	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.045	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	130	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Chromium	0.0022		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0049	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00021	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.018		0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.086		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	72		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.92		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	310		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	960		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: 280-95159-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.047	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00070	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.19	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	98	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Chromium	0.0019	J	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0031	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Selenium	0.0023	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.039		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.50		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	510		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-13 — Lab Sample ID: 280-95159-3

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-95159-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.25		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00079	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.054	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	32	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00065	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.018		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0093	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00064	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0017	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.059		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.4	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	36		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	340		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	43		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-95159-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.085	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00056	J	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0064		0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.27	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Beryllium	0.00082	J	0.0010	0.00040	mg/L	1		6020A	Total Recoverable
Calcium	60	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cadmium	0.00032	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Cobalt	0.012		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.34		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.045		0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.012	B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0031	J	0.0050	0.00048	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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-95159-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.055		0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.9	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	250		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-95159-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.37		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00096	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.045	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	180	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0011		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0016	J	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0040	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00048	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0033	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.14		0.0080	0.00016	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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.5		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.31	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	890		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	190		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-95159-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.38		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0010	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.050	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	240	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0039		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0038		0.0020	0.00026	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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-16 (Continued) — Lab Sample ID: 280-95159-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0059	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00094	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.00068	J	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.16		0.0080	0.00016	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	2.7	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.31	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	320		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: FIELD DUPLICATE — Lab Sample ID: 280-95159-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.27		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.11	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	210	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00014	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0033		0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.00090	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00021	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.011		0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.034		0.0080	0.00016	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	260		15	1.3	mg/L	5		9056A	Total/NA
Fluoride	0.16	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	430		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1100		10	4.7	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: EQUIPMENT BLANK — Lab Sample ID: 280-95159-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0012	J B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	0.45	J B	1.0	0.043	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

TestAmerica Job ID: 280-95159-1

Client Sample ID: EQUIPMENT BLANK (Continued) — Lab Sample ID: 280-95159-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.00040	J	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Lithium	0.00039	J	0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	6.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	13.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	1.1	J	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	13		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

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-95159-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-95159-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-95159-1	PNMW-1B	Water	03/22/17 17:50	03/24/17 08:10
280-95159-2	PNMW-2B	Water	03/22/17 13:20	03/24/17 08:10
280-95159-3	PNMW-13	Water	03/23/17 16:00	03/24/17 08:10
280-95159-4	PNMW-14	Water	03/23/17 14:50	03/24/17 08:10
280-95159-5	PNMW-15	Water	03/23/17 14:00	03/24/17 08:10
280-95159-6	PNMW-16	Water	03/23/17 09:40	03/24/17 08:10
280-95159-8	FIELD DUPLICATE	Water	03/22/17 11:20	03/24/17 08:10
280-95159-9	EQUIPMENT BLANK	Water	03/22/17 16:50	03/24/17 08:10

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

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.25		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 10:38	1

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.047	J	0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 10:43	1

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.25		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 10:47	1

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.085	J	0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 11:00	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.37		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 11:04	1

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.38		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 11:09	1

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 11:18	1

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 10:18	1

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

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10
Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:24	1

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

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0023**	**J**	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:24	1
Barium	**0.045**	**B**	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:24	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:24	1
Calcium	**130**	**B**	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:24	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:24	1
Cobalt	ND		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:24	1
Chromium	**0.0022**		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:24	1
Molybdenum	**0.0049**	**J**	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:24	1
Lead	**0.00021**	**J B**	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:24	1
Selenium	**0.018**		0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:24	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:24	1
Lithium	**0.086**		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:24	1

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:28	1
Arsenic	**0.00070**	**J**	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:28	1
Barium	**0.19**	**B**	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:28	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:28	1
Calcium	**98**	**B**	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:28	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:28	1
Cobalt	ND		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:28	1
Chromium	**0.0019**	**J**	0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:28	1
Molybdenum	**0.0031**	**J**	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:28	1
Lead	ND		0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:28	1
Selenium	**0.0023**	**J**	0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:28	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:28	1
Lithium	**0.039**		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:28	1

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:32	1
Arsenic	**0.00079**	**J**	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:32	1
Barium	**0.054**	**B**	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:32	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:32	1
Calcium	**32**	**B**	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:32	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:32	1
Cobalt	**0.00065**	**J**	0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:32	1
Chromium	**0.018**		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:32	1
Molybdenum	**0.0093**	**J**	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:32	1
Lead	**0.00064**	**J B**	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:32	1
Selenium	**0.0017**	**J**	0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:32	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:32	1
Lithium	**0.059**		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:32	1

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

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00056	J	0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:36	1
Arsenic	0.0064		0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:36	1
Barium	0.27	B	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:36	1
Beryllium	0.00082	J	0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:36	1
Calcium	60	B	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:36	1
Cadmium	0.00032	J	0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:36	1
Cobalt	0.012		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:36	1
Chromium	0.34		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:36	1
Molybdenum	0.045		0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:36	1
Lead	0.012	B	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:36	1
Selenium	0.0031	J	0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:36	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:36	1
Lithium	0.055		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:36	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:41	1
Arsenic	0.00096	J	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:41	1
Barium	0.045	B	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:41	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:41	1
Calcium	180	B	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:41	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:41	1
Cobalt	0.0011		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:41	1
Chromium	0.0016	J	0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:41	1
Molybdenum	0.0040	J	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:41	1
Lead	0.00048	J B	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:41	1
Selenium	0.0033	J	0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:41	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:41	1
Lithium	0.14		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:41	1

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:45	1
Arsenic	0.0010	J	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:45	1
Barium	0.050	B	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:45	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:45	1
Calcium	240	B	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:45	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:45	1
Cobalt	0.0039		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:45	1
Chromium	0.0038		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:45	1
Molybdenum	0.0059	J	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:45	1
Lead	0.00094	J B	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:45	1
Selenium	0.00068	J	0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:45	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:45	1
Lithium	0.16		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:45	1

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

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:53	1
Arsenic	**0.0017**	**J**	0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:53	1
Barium	**0.11**	**B**	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:53	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:53	1
Calcium	**210**	**B**	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:53	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:53	1
Cobalt	**0.00014**	**J**	0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:53	1
Chromium	**0.0033**		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:53	1
Molybdenum	**0.00090**	**J**	0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:53	1
Lead	**0.00021**	**J B**	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:53	1
Selenium	**0.011**		0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:53	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:53	1
Lithium	**0.034**		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:53	1

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 14:57	1
Arsenic	ND		0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 14:57	1
Barium	**0.0012**	**J B**	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 14:57	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 14:57	1
Calcium	**0.45**	**J B**	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 14:57	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 14:57	1
Cobalt	ND		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 14:57	1
Chromium	**0.00040**	**J**	0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 14:57	1
Molybdenum	ND		0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 14:57	1
Lead	ND		0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 14:57	1
Selenium	ND		0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 14:57	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 14:57	1
Lithium	**0.00039**	**J**	0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 14:57	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:25	1

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:32	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:34	1

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:36	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:38	1

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:40	1

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:49	1

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:52	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			03/30/17 09:33	1
Temperature	20.6	HF	1.0	1.0	Degrees C			03/30/17 09:33	1
Chloride	72		3.0	0.25	mg/L			04/13/17 14:29	1
Fluoride	0.92		0.50	0.060	mg/L			04/13/17 14:29	1
Sulfate	310		25	1.2	mg/L			04/13/17 23:20	5
Total Dissolved Solids (TDS)	960		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			03/30/17 09:43	1

General Chemistry (Continued)

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	20.1	HF	1.0	1.0	Degrees C			03/30/17 09:43	1
Chloride	14		3.0	0.25	mg/L			04/13/17 15:40	1
Fluoride	0.50		0.50	0.060	mg/L			04/13/17 15:40	1
Sulfate	26		5.0	0.23	mg/L			04/13/17 15:40	1
Total Dissolved Solids (TDS)	510		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	ND		4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			03/30/17 09:48	1
Temperature	20.1	HF	1.0	1.0	Degrees C			03/30/17 09:48	1
Chloride	1.4	J	3.0	0.25	mg/L			04/13/17 15:58	1
Fluoride	1.5		0.50	0.060	mg/L			04/13/17 15:58	1
Sulfate	36		5.0	0.23	mg/L			04/13/17 15:58	1
Total Dissolved Solids (TDS)	340		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	43		4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			03/30/17 09:53	1
Temperature	20.3	HF	1.0	1.0	Degrees C			03/30/17 09:53	1
Chloride	1.9	J	3.0	0.25	mg/L			04/13/17 16:15	1
Fluoride	1.1		0.50	0.060	mg/L			04/13/17 16:15	1
Sulfate	26		5.0	0.23	mg/L			04/13/17 16:15	1
Total Dissolved Solids (TDS)	250		10	4.7	mg/L			03/28/17 09:17	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			03/30/17 09:58	1
Temperature	20.6	HF	1.0	1.0	Degrees C			03/30/17 09:58	1
Chloride	3.5		3.0	0.25	mg/L			04/13/17 16:33	1
Fluoride	0.31	J	0.50	0.060	mg/L			04/13/17 16:33	1
Sulfate	890		50	2.3	mg/L			04/14/17 01:24	10
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	190		4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			03/30/17 10:03	1
Temperature	20.6	HF	1.0	1.0	Degrees C			03/30/17 10:03	1
Chloride	2.7	J	3.0	0.25	mg/L			04/13/17 16:51	1
Fluoride	0.31	J	0.50	0.060	mg/L			04/13/17 16:51	1

General Chemistry (Continued)

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1100		50	2.3	mg/L			04/14/17 01:42	10
Total Dissolved Solids (TDS)	2000		20	9.4	mg/L			03/28/17 09:17	1
Total Suspended Solids	320		4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
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			03/30/17 10:13	1
Temperature	20.3	HF	1.0	1.0	Degrees C			03/30/17 10:13	1
Chloride	260		15	1.3	mg/L			04/14/17 02:17	5
Fluoride	0.16	J	0.50	0.060	mg/L			04/13/17 18:01	1
Sulfate	430		25	1.2	mg/L			04/14/17 02:17	5
Total Dissolved Solids (TDS)	1100		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	12		4.0	1.1	mg/L			03/27/17 17:24	1

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.4	HF	0.1	0.1	SU			04/27/17 13:09	1
Temperature	13.0	HF	1.0	1.0	Degrees C			04/27/17 13:09	1
Chloride	ND		3.0	0.25	mg/L			04/13/17 18:19	1
Fluoride	ND		0.50	0.060	mg/L			04/13/17 18:19	1
Sulfate	1.1	J	5.0	0.23	mg/L			04/13/17 18:19	1
Total Dissolved Solids (TDS)	13		10	4.7	mg/L			03/28/17 09:17	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			03/27/17 17:24	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.201		0.105	0.107	1.00	0.132	pCi/L	03/31/17 07:31	04/21/17 07:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*03/31/17 07:31*	*04/21/17 07:06*	*1*

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.404		0.132	0.137	1.00	0.120	pCi/L	03/31/17 07:31	04/21/17 07:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*03/31/17 07:31*	*04/21/17 07:06*	*1*

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.282		0.112	0.115	1.00	0.117	pCi/L	03/31/17 07:31	04/21/17 07:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110	03/31/17 07:31	04/21/17 07:06	1

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.411		0.207	0.210	1.00	0.243	pCi/L	03/31/17 07:31	04/21/17 07:06	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.5		40 - 110	03/31/17 07:31	04/21/17 07:06	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.235		0.109	0.112	1.00	0.131	pCi/L	03/31/17 07:31	04/21/17 07:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.9		40 - 110	03/31/17 07:31	04/21/17 07:07	1

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.318		0.117	0.120	1.00	0.117	pCi/L	03/31/17 07:31	04/21/17 07:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110	03/31/17 07:31	04/21/17 07:07	1

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.609		0.155	0.164	1.00	0.122	pCi/L	03/31/17 07:31	04/21/17 07:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.2		40 - 110	03/31/17 07:31	04/21/17 07:07	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0155	U	0.0508	0.0508	1.00	0.0994	pCi/L	03/31/17 07:31	04/21/17 07:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*03/31/17 07:31*	*04/21/17 07:07*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.473**		0.272	0.276	1.00	0.413	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*85.2*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.697**		0.305	0.312	1.00	0.434	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*78.9*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.369	U	0.242	0.244	1.00	0.370	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*84.5*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.795	U	0.574	0.579	1.00	0.896	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.5*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*83.0*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.518**		0.308	0.312	1.00	0.474	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*85.2*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.373**		0.232	0.234	1.00	0.351	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*88.2*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.448**		0.261	0.264	1.00	0.394	pCi/L	03/30/17 08:45	04/14/17 11:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.2*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*
Y Carrier	*85.2*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:07*	*1*

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0969	U	0.198	0.199	1.00	0.342	pCi/L	03/30/17 08:45	04/14/17 11:07	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110	03/30/17 08:45	04/14/17 11:07	1
Y Carrier	83.7		40 - 110	03/30/17 08:45	04/14/17 11:07	1

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

Client Sample ID: PNMW-1B
Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.674		0.292	0.296	5.00	0.413	pCi/L		04/21/17 14:24	1

Client Sample ID: PNMW-2B
Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.10		0.332	0.340	5.00	0.434	pCi/L		04/21/17 14:24	1

Client Sample ID: PNMW-13
Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.651		0.267	0.270	5.00	0.370	pCi/L		04/21/17 14:24	1

Client Sample ID: PNMW-14
Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.21		0.610	0.616	5.00	0.896	pCi/L		04/21/17 14:24	1

Client Sample ID: PNMW-15
Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.753		0.327	0.331	5.00	0.474	pCi/L		04/21/17 14:24	1

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

Client Sample ID: PNMW-16
Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.691**		0.259	0.263	5.00	0.351	pCi/L		04/21/17 14:24	1

Client Sample ID: FIELD DUPLICATE
Date Collected: 03/22/17 11:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.06**		0.304	0.311	5.00	0.394	pCi/L		04/21/17 14:24	1

Client Sample ID: EQUIPMENT BLANK
Date Collected: 03/22/17 16:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.112	U	0.205	0.205	5.00	0.342	pCi/L		04/21/17 14:24	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-272410/1-A
Matrix: Water
Analysis Batch: 273336

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 272410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		03/29/17 14:00	04/04/17 10:09	1

Lab Sample ID: LCS 240-272410/2-A
Matrix: Water
Analysis Batch: 273336

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 272410

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

Lab Sample ID: 280-95159-9 MS
Matrix: Water
Analysis Batch: 273336

Client Sample ID: EQUIPMENT BLANK
Prep Type: Total Recoverable
Prep Batch: 272410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	ND		1.00	1.05		mg/L		105	75 - 125

Lab Sample ID: 280-95159-9 MSD
Matrix: Water
Analysis Batch: 273336

Client Sample ID: EQUIPMENT BLANK
Prep Type: Total Recoverable
Prep Batch: 272410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	ND		1.00	1.06		mg/L		106	75 - 125	0	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-272410/1-A
Matrix: Water
Analysis Batch: 272952

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 272410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		03/29/17 14:00	03/31/17 13:13	1
Arsenic	ND		0.0050	0.00035	mg/L		03/29/17 14:00	03/31/17 13:13	1
Barium	0.000770	J	0.0050	0.00052	mg/L		03/29/17 14:00	03/31/17 13:13	1
Beryllium	ND		0.0010	0.00040	mg/L		03/29/17 14:00	03/31/17 13:13	1
Calcium	0.162	J	1.0	0.043	mg/L		03/29/17 14:00	03/31/17 13:13	1
Cadmium	ND		0.0010	0.00031	mg/L		03/29/17 14:00	03/31/17 13:13	1
Cobalt	ND		0.0010	0.00013	mg/L		03/29/17 14:00	03/31/17 13:13	1
Chromium	ND		0.0020	0.00026	mg/L		03/29/17 14:00	03/31/17 13:13	1
Molybdenum	ND		0.010	0.00051	mg/L		03/29/17 14:00	03/31/17 13:13	1
Lead	0.000193	J	0.0010	0.00016	mg/L		03/29/17 14:00	03/31/17 13:13	1
Selenium	ND		0.0050	0.00048	mg/L		03/29/17 14:00	03/31/17 13:13	1
Thallium	ND		0.0010	0.00028	mg/L		03/29/17 14:00	03/31/17 13:13	1
Lithium	ND		0.0080	0.00016	mg/L		03/29/17 14:00	03/31/17 13:13	1

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

Lab Sample ID: LCS 240-272410/29-A
Matrix: Water
Analysis Batch: 272952

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 272410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0844		mg/L		84	80 - 120
Arsenic	1.00	0.887		mg/L		89	80 - 120
Barium	1.00	0.898		mg/L		90	80 - 120
Beryllium	1.00	0.902		mg/L		90	80 - 120
Calcium	10.0	8.74		mg/L		87	80 - 120
Cadmium	1.00	0.957		mg/L		96	80 - 120
Cobalt	1.00	0.984		mg/L		98	80 - 120
Chromium	1.00	0.958		mg/L		96	80 - 120
Molybdenum	0.100	0.0895		mg/L		89	80 - 120
Lead	1.00	0.978		mg/L		98	80 - 120
Selenium	1.00	0.923		mg/L		92	80 - 120
Thallium	0.250	0.234		mg/L		94	80 - 120
Lithium	0.100	0.0940		mg/L		94	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-368480/1-A
Matrix: Water
Analysis Batch: 368639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 368480

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		04/07/17 11:54	04/07/17 16:14	1

Lab Sample ID: LCS 280-368480/2-A
Matrix: Water
Analysis Batch: 368639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 368480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00503		mg/L		101	84 - 120

Lab Sample ID: 280-95159-1 MS
Matrix: Water
Analysis Batch: 368639

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 368480

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00500	0.00496		mg/L		99	75 - 125

Lab Sample ID: 280-95159-1 MSD
Matrix: Water
Analysis Batch: 368639

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 368480

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00472		mg/L		94	75 - 125	5	20

Method: 9040B - pH

Lab Sample ID: LCS 280-367546/4
Matrix: Water
Analysis Batch: 367546

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: 280-95159-1 DU
Matrix: Water
Analysis Batch: 367546

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.9	HF	7.9		SU		0	5
Temperature	20.6	HF	20.3		Degrees C		2	10

Lab Sample ID: LCS 280-371259/4
Matrix: Water
Analysis Batch: 371259

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: 280-95159-9 DU
Matrix: Water
Analysis Batch: 371259

Client Sample ID: EQUIPMENT BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	6.4	HF	6.3		SU		0.9	5
Temperature	13.0	HF	13.0		Degrees C		0	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-369249/6
Matrix: Water
Analysis Batch: 369249

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	0.25	mg/L			04/13/17 12:25	1
Fluoride	ND		0.50	0.060	mg/L			04/13/17 12:25	1
Sulfate	ND		5.0	0.23	mg/L			04/13/17 12:25	1

Lab Sample ID: LCS 280-369249/4
Matrix: Water
Analysis Batch: 369249

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.3		mg/L		95	90 - 110
Fluoride	5.00	4.86		mg/L		97	90 - 110
Sulfate	100	95.6		mg/L		96	90 - 110

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

Lab Sample ID: LCSD 280-369249/5
Matrix: Water
Analysis Batch: 369249

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.3		mg/L		95	90 - 110	0	10
Fluoride	5.00	4.85		mg/L		97	90 - 110	0	10
Sulfate	100	95.7		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-369249/3
Matrix: Water
Analysis Batch: 369249

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.40	J	mg/L		96	50 - 150
Fluoride	0.200	0.174	J	mg/L		87	50 - 150
Sulfate	2.50	2.40	J	mg/L		96	50 - 150

Lab Sample ID: 280-95159-1 MS
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	72		25.0	99.0		mg/L		107	80 - 120
Fluoride	0.92		5.00	6.10		mg/L		104	80 - 120

Lab Sample ID: 280-95159-1 MS
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	310		125	429		mg/L		99	80 - 120

Lab Sample ID: 280-95159-1 MSD
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	72		25.0	98.5		mg/L		105	80 - 120	1	20
Fluoride	0.92		5.00	6.14		mg/L		104	80 - 120	1	20

Lab Sample ID: 280-95159-1 MSD
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	310		125	429		mg/L		99	80 - 120	0	20

Lab Sample ID: 280-95159-1 DU
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	72		72.3		mg/L		0.1	15

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

Lab Sample ID: 280-95159-1 DU
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	0.92			0.922		mg/L				0.2	15

Lab Sample ID: 280-95159-1 DU
Matrix: Water
Analysis Batch: 369249

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	310			303		mg/L				0.8	15

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

Lab Sample ID: MB 280-367060/1
Matrix: Water
Analysis Batch: 367060

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			03/28/17 09:17	1

Lab Sample ID: LCS 280-367060/2
Matrix: Water
Analysis Batch: 367060

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids (TDS)			501	486		mg/L		97	86 - 110		

Lab Sample ID: 280-95159-9 DU
Matrix: Water
Analysis Batch: 367060

Client Sample ID: EQUIPMENT BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	13			8.00	J F5	mg/L				48	10

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

Lab Sample ID: MB 280-366972/2
Matrix: Water
Analysis Batch: 366972

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			03/27/17 17:24	1

Lab Sample ID: LCS 280-366972/1
Matrix: Water
Analysis Batch: 366972

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	102		mg/L		102	86 - 114		

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-300834/1-A
Matrix: Water
Analysis Batch: 304702

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300834

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1290	U	0.0944	0.0951	1.00	0.135	pCi/L	03/31/17 07:31	04/21/17 07:05	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.4*		*40 - 110*	*03/31/17 07:31*	*04/21/17 07:05*	*1*

Lab Sample ID: LCS 160-300834/2-A
Matrix: Water
Analysis Batch: 304702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300834

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.45		1.12	1.00	0.131	pCi/L	92	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.1*		*40 - 110*

Lab Sample ID: LCSD 160-300834/3-A
Matrix: Water
Analysis Batch: 304702

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300834

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.47		1.12	1.00	0.108	pCi/L	92	68 - 137	0.01	1

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

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-300697/1-A
Matrix: Water
Analysis Batch: 303483

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300697

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2715	U	0.280	0.281	1.00	0.458	pCi/L	03/30/17 08:45	04/14/17 11:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.4*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:06*	*1*
Y Carrier	*90.1*		*40 - 110*	*03/30/17 08:45*	*04/14/17 11:06*	*1*

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

Lab Sample ID: LCS 160-300697/2-A
Matrix: Water
Analysis Batch: 303483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300697

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.6	16.29		1.75	1.00	0.463	pCi/L	120	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.1*		*40 - 110*
Y Carrier	*82.6*		*40 - 110*

Lab Sample ID: LCSD 160-300697/3-A
Matrix: Water
Analysis Batch: 303483

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300697

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.6	15.61		1.66	1.00	0.405	pCi/L	115	56 - 140	0.20	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*91.2*		*40 - 110*
Y Carrier	*88.2*		*40 - 110*

Metals

Prep Batch: 272410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total Recoverable	Water	3005A	
280-95159-2	PNMW-2B	Total Recoverable	Water	3005A	
280-95159-3	PNMW-13	Total Recoverable	Water	3005A	
280-95159-4	PNMW-14	Total Recoverable	Water	3005A	
280-95159-5	PNMW-15	Total Recoverable	Water	3005A	
280-95159-6	PNMW-16	Total Recoverable	Water	3005A	
280-95159-8	FIELD DUPLICATE	Total Recoverable	Water	3005A	
280-95159-9	EQUIPMENT BLANK	Total Recoverable	Water	3005A	
MB 240-272410/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-272410/29-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-272410/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-95159-9 MS	EQUIPMENT BLANK	Total Recoverable	Water	3005A	
280-95159-9 MSD	EQUIPMENT BLANK	Total Recoverable	Water	3005A	

Analysis Batch: 272952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total Recoverable	Water	6020A	272410
280-95159-2	PNMW-2B	Total Recoverable	Water	6020A	272410
280-95159-3	PNMW-13	Total Recoverable	Water	6020A	272410
280-95159-4	PNMW-14	Total Recoverable	Water	6020A	272410
280-95159-5	PNMW-15	Total Recoverable	Water	6020A	272410
280-95159-6	PNMW-16	Total Recoverable	Water	6020A	272410
280-95159-8	FIELD DUPLICATE	Total Recoverable	Water	6020A	272410
280-95159-9	EQUIPMENT BLANK	Total Recoverable	Water	6020A	272410
MB 240-272410/1-A	Method Blank	Total Recoverable	Water	6020A	272410
LCS 240-272410/29-A	Lab Control Sample	Total Recoverable	Water	6020A	272410

Analysis Batch: 273336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total Recoverable	Water	6010C	272410
280-95159-2	PNMW-2B	Total Recoverable	Water	6010C	272410
280-95159-3	PNMW-13	Total Recoverable	Water	6010C	272410
280-95159-4	PNMW-14	Total Recoverable	Water	6010C	272410
280-95159-5	PNMW-15	Total Recoverable	Water	6010C	272410
280-95159-6	PNMW-16	Total Recoverable	Water	6010C	272410
280-95159-8	FIELD DUPLICATE	Total Recoverable	Water	6010C	272410
280-95159-9	EQUIPMENT BLANK	Total Recoverable	Water	6010C	272410
MB 240-272410/1-A	Method Blank	Total Recoverable	Water	6010C	272410
LCS 240-272410/2-A	Lab Control Sample	Total Recoverable	Water	6010C	272410
280-95159-9 MS	EQUIPMENT BLANK	Total Recoverable	Water	6010C	272410
280-95159-9 MSD	EQUIPMENT BLANK	Total Recoverable	Water	6010C	272410

Prep Batch: 368480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	7470A	
280-95159-2	PNMW-2B	Total/NA	Water	7470A	
280-95159-3	PNMW-13	Total/NA	Water	7470A	
280-95159-4	PNMW-14	Total/NA	Water	7470A	
280-95159-5	PNMW-15	Total/NA	Water	7470A	
280-95159-6	PNMW-16	Total/NA	Water	7470A	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 368480 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	7470A	
MB 280-368480/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-368480/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-95159-1 MS	PNMW-1B	Total/NA	Water	7470A	
280-95159-1 MSD	PNMW-1B	Total/NA	Water	7470A	

Analysis Batch: 368639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	7470A	368480
280-95159-2	PNMW-2B	Total/NA	Water	7470A	368480
280-95159-3	PNMW-13	Total/NA	Water	7470A	368480
280-95159-4	PNMW-14	Total/NA	Water	7470A	368480
280-95159-5	PNMW-15	Total/NA	Water	7470A	368480
280-95159-6	PNMW-16	Total/NA	Water	7470A	368480
280-95159-8	FIELD DUPLICATE	Total/NA	Water	7470A	368480
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	7470A	368480
MB 280-368480/1-A	Method Blank	Total/NA	Water	7470A	368480
LCS 280-368480/2-A	Lab Control Sample	Total/NA	Water	7470A	368480
280-95159-1 MS	PNMW-1B	Total/NA	Water	7470A	368480
280-95159-1 MSD	PNMW-1B	Total/NA	Water	7470A	368480

General Chemistry

Analysis Batch: 366972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-95159-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-95159-3	PNMW-13	Total/NA	Water	SM 2540D	
280-95159-5	PNMW-15	Total/NA	Water	SM 2540D	
280-95159-6	PNMW-16	Total/NA	Water	SM 2540D	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	SM 2540D	
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	SM 2540D	
MB 280-366972/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-366972/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 367060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-95159-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-95159-3	PNMW-13	Total/NA	Water	SM 2540C	
280-95159-4	PNMW-14	Total/NA	Water	SM 2540C	
280-95159-5	PNMW-15	Total/NA	Water	SM 2540C	
280-95159-6	PNMW-16	Total/NA	Water	SM 2540C	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	SM 2540C	
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	
MB 280-367060/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-367060/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-95159-9 DU	EQUIPMENT BLANK	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 367546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	9040B	
280-95159-2	PNMW-2B	Total/NA	Water	9040B	
280-95159-3	PNMW-13	Total/NA	Water	9040B	
280-95159-4	PNMW-14	Total/NA	Water	9040B	
280-95159-5	PNMW-15	Total/NA	Water	9040B	
280-95159-6	PNMW-16	Total/NA	Water	9040B	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	9040B	
LCS 280-367546/4	Lab Control Sample	Total/NA	Water	9040B	
280-95159-1 DU	PNMW-1B	Total/NA	Water	9040B	

Analysis Batch: 369249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	9056A	
280-95159-1	PNMW-1B	Total/NA	Water	9056A	
280-95159-2	PNMW-2B	Total/NA	Water	9056A	
280-95159-3	PNMW-13	Total/NA	Water	9056A	
280-95159-4	PNMW-14	Total/NA	Water	9056A	
280-95159-5	PNMW-15	Total/NA	Water	9056A	
280-95159-5	PNMW-15	Total/NA	Water	9056A	
280-95159-6	PNMW-16	Total/NA	Water	9056A	
280-95159-6	PNMW-16	Total/NA	Water	9056A	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	9056A	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	9056A	
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	9056A	
MB 280-369249/6	Method Blank	Total/NA	Water	9056A	
LCS 280-369249/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-369249/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-369249/3	Lab Control Sample	Total/NA	Water	9056A	
280-95159-1 MS	PNMW-1B	Total/NA	Water	9056A	
280-95159-1 MS	PNMW-1B	Total/NA	Water	9056A	
280-95159-1 MSD	PNMW-1B	Total/NA	Water	9056A	
280-95159-1 MSD	PNMW-1B	Total/NA	Water	9056A	
280-95159-1 DU	PNMW-1B	Total/NA	Water	9056A	
280-95159-1 DU	PNMW-1B	Total/NA	Water	9056A	

Analysis Batch: 371259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	9040B	
LCS 280-371259/4	Lab Control Sample	Total/NA	Water	9040B	
280-95159-9 DU	EQUIPMENT BLANK	Total/NA	Water	9040B	

Rad

Prep Batch: 300697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-95159-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-95159-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-95159-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-95159-5	PNMW-15	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 300697 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	PrecSep_0	
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	PrecSep_0	
MB 160-300697/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-300697/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-300697/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 300834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-95159-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-95159-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-95159-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-95159-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-95159-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-95159-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-95159-8	FIELD DUPLICATE	Total/NA	Water	PrecSep-21	
280-95159-9	EQUIPMENT BLANK	Total/NA	Water	PrecSep-21	
MB 160-300834/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-300834/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-300834/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Lab Chronicle

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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-1B

Date Collected: 03/22/17 17:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 10:38	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:24	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:25	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 09:33	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 14:29	TLP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	369249	04/13/17 23:20	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.75 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:06	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.75 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 03/22/17 13:20
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 10:43	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:28	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:32	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 09:43	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 15:40	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.60 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:06	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.60 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-13

Date Collected: 03/23/17 16:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 10:47	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:32	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:34	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 09:48	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 15:58	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			998.67 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:06	ALD	TAL SL
Total/NA	Prep	PrecSep_0			998.67 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: PNMW-14

Date Collected: 03/23/17 14:50
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 11:00	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:36	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:36	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 09:53	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 16:15	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Prep	PrecSep-21			499.06 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:06	ALD	TAL SL
Total/NA	Prep	PrecSep_0			499.06 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: PNMW-15

Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5

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	272410	03/29/17 14:00	DTN	TAL CAN

Lab Chronicle

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

TestAmerica Job ID: 280-95159-1

Client Sample ID: PNMW-15

Date Collected: 03/23/17 14:00
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6010C		1			273336	04/04/17 11:04	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:41	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:38	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 09:58	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 16:33	TLP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	369249	04/14/17 01:24	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.52 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:07	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.52 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: PNMW-16

Date Collected: 03/23/17 09:40
Date Received: 03/24/17 08:10

Lab Sample ID: 280-95159-6

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	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 11:09	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:45	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:40	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 10:03	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 16:51	TLP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	369249	04/14/17 01:42	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.02 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:07	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.02 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: FIELD DUPLICATE

Lab Sample ID: 280-95159-8

Date Collected: 03/22/17 11:20
Matrix: Water
Date Received: 03/24/17 08:10

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	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 11:18	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:53	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:49	CDH	TAL DEN
Total/NA	Analysis	9040B		1			367546	03/30/17 10:13	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 18:01	TLP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	369249	04/14/17 02:17	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.87 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:07	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.87 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1			303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 280-95159-9

Date Collected: 03/22/17 16:50
Matrix: Water
Date Received: 03/24/17 08:10

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	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6010C		1			273336	04/04/17 10:18	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	272410	03/29/17 14:00	DTN	TAL CAN
Total Recoverable	Analysis	6020A		1			272952	03/31/17 14:57	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	368480	04/07/17 11:54	CDH	TAL DEN
Total/NA	Analysis	7470A		1			368639	04/07/17 16:52	CDH	TAL DEN
Total/NA	Analysis	9040B		1			371259	04/27/17 13:09	IEU	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	369249	04/13/17 18:19	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	367060	03/28/17 09:17	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	366972	03/27/17 17:24	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.14 mL	1.0 g	300834	03/31/17 07:31	MBC	TAL SL
Total/NA	Analysis	9315		1			304702	04/21/17 07:07	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.14 mL	1.0 g	300697	03/30/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	303483	04/14/17 11:07	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			304767	04/21/17 14:24	RTM	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-95159-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-95159-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: NJH	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: Anna Lundin	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:	280-95159 Chain of Custody
City: Englewood	TAT Requested (days): Standard	
State, Zip: CO, 80112		
Phone: 720-633-2380(Tel)	PO #: DEN-001	
Email: anna.lundin@hdrinc.com	WO #:	
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378	
Site: Colorado	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	3/22	1750	G	Water	N	N	1	2	1	1	2	7	
PNMW-2B	3/22	1320	G	Water	N	N	1	2	1	1	2	7	
PNMW-13	3/23	1600	G	Water	N	N	1	2	1	1	2	7	
PNMW-14	3/23	1450	G	Water	N	N	1	2	1	0	2	6	Not enough H2O for TSS
PNMW-15	3/23	1400	G	Water	N	N	1	2	1	1	2	7	
PNMW-16	3/23	0940	G	Water	N	N	1	2	1	1	2	7	
PNMW-17	3/22	1110	G	Water	N	N	1	2	1	1	2	7	
Field Duplicate	3/22	1120	G	Water	N	N	1	2	1	1	2	7	
Equipment Blank	3/23	1650	G	Water	N	N	1	2	1	1	2	7	

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/24/17 0810	HDR		3/24/17 0810	TAD
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: 0.4, 1.4, 0.2 IR#7 0.0 Transfer RP 3-24-17

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

Chain of Custody Record

280-95159 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie		COC No: 80-392053.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-95159-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/19/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

2 X 1L HNO3 Polys per Sample. D.B. 3-27-17

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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-95159-1)	3/22/17	17:50 Mountain		Water			X	X	X	2	
PNMW-2B (280-95159-2)	3/22/17	13:20 Mountain		Water			X	X	X	2	
PNMW-13 (280-95159-3)	3/23/17	16:00 Mountain		Water			X	X	X	2	
PNMW-14 (280-95159-4)	3/23/17	14:50 Mountain		Water			X	X	X	2	
PNMW-15 (280-95159-5)	3/23/17	14:00 Mountain		Water			X	X	X	2	
PNMW-16 (280-95159-6)	3/23/17	09:40 Mountain		Water			X	X	X	2	
PNMW-17 (280-95159-7)	3/22/17	11:10 Mountain		Water			X	X	X	2	
FIELD DUPLICATE (280-95159-8)	3/22/17	11:20 Mountain		Water			X	X	X	2	
EQUIPMENT BLANK (280-95159-9)	3/22/17	16:50 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Takeuchi Tue	3/27/17 1525	TAD		3-28-17 0920	TASL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-392054.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-95159-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 4/17/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

1 x 500mL HNO3 poly per sample. D.B. 3-27-17

SCO

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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-95159-1)	3/22/17	17:50 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-95159-2)	3/22/17	13:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-95159-3)	3/23/17	16:00 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-95159-4)	3/23/17	14:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-95159-5)	3/23/17	14:00 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-95159-6)	3/23/17	09:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-95159-7)	3/22/17	11:10 Mountain		Water			X	X	1	, Use Collision Cell
FIELD DUPLICATE (280-95159-8)	3/22/17	11:20 Mountain		Water			X	X	1	Use Collision Cell
EQUIPMENT BLANK (280-95159-9)	3/22/17	16:50 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Edmundo Nuñez	3/27/17 1535	TAD		3/28/17 0920	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Canton Facility

Client TA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 3/28/17 Opened on 3/28/17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-8 (CF **-0.3** °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 0.7 °C
   IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
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 11-15 have been checked at the originating laboratory.
11. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC682547**
12. Were VOAs on the COC? Yes No
13. Were air bubbles >6 mm in any VOA vials? Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

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

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

15. 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)

16. SAMPLE PRESERVATION

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

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

Ref: SOP NC-SC-0005, Sample Receiving

\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\In Revision\WI-NC-099-022817 Cooler Receipt Form.doc djl

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-95159-1

Login Number: 95159
List Number: 1
Creator: Pottruff, Reed W

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-95159-1

Login Number: 95159
List Number: 3
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 03/28/17 03:52 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	False	
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	0.4,17.0,17.0
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.	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

TestAmerica Job ID: 280-95159-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-95159-1	PNMW-1B	88.5
280-95159-2	PNMW-2B	83.5
280-95159-3	PNMW-13	85.3
280-95159-4	PNMW-14	78.5
280-95159-5	PNMW-15	87.9
280-95159-6	PNMW-16	88.5
280-95159-8	FIELD DUPLICATE	88.2
280-95159-9	EQUIPMENT BLANK	91.2
LCS 160-300834/2-A	Lab Control Sample	86.1
LCSD 160-300834/3-A	Lab Control Sample Dup	91.2
MB 160-300834/1-A	Method Blank	84.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-95159-1	PNMW-1B	88.5	85.2
280-95159-2	PNMW-2B	83.5	78.9
280-95159-3	PNMW-13	85.3	84.5
280-95159-4	PNMW-14	78.5	83.0
280-95159-5	PNMW-15	87.9	85.2
280-95159-6	PNMW-16	88.5	88.2
280-95159-8	FIELD DUPLICATE	88.2	85.2
280-95159-9	EQUIPMENT BLANK	91.2	83.7
LCS 160-300697/2-A	Lab Control Sample	86.1	82.6
LCSD 160-300697/3-A	Lab Control Sample Dup	91.2	88.2
MB 160-300697/1-A	Method Blank	84.4	90.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-96075-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 11:01:58 AM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

Links

Review your project results through TotalAccess

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-96075-1

Qualifiers

Metals

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

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)
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: 280-96075-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-96075-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 4/19/2017 at 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.3º C, 2.3º C and 2.4º C.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/26/2017 and analyzed on 04/27/2017.

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 (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/26/2017 and analyzed on 04/29/2017, 05/01/2017 and 05/02/2017.

Barium, Calcium, Chromium, Lead and Lithium were detected in method blank MB 240-276308/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have 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.

Beryllium failed the recovery criteria high for LCS 240-276308/3-A. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Lithium failed the recovery criteria high for the MSD of sample 240-78561-1 in batch 240-277066. 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 (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for total mercury in accordance with EPA SW-846

Job ID: 280-96075-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Methods 7470A. The samples were prepared and analyzed on 05/11/2017.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/21/2017.

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

TOTAL SUSPENDED SOLIDS
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/20/2017.

The following samples were diluted due to slow filtration and high Total Suspended Solids: PNMW-13 (280-96075-3), PNMW-14 (280-96075-4). Elevated reporting limits (RLs) are provided.

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

CORROSIVITY (PH)
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/21/2017.

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

ANIONS (28 DAYS)
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 05/10/2017 and 05/11/2017.

Samples PNMW-1B (280-96075-1)[5X], PNMW-15 (280-96075-5)[10X], and PNMW-16 (280-96075-6)[10X] 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 (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 04/24/2017 and analyzed on 05/16/2017.

Radium-226 was detected in method blank MB 160-305139/1-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.

The following sample was reduced due to large amounts of sediment turning the sample murky and brown: PNMW-14 (280-96075-4).

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

RADIUM-228
Samples PNMW-1B (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 04/24/2017 and analyzed on 05/09/2017.

Job ID: 280-96075-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The following sample was reduced due to large amounts of sediment turning the sample murky and brown: PNMW-14 (280-96075-4).

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 (280-96075-1), PNMW-2B (280-96075-2), PNMW-13 (280-96075-3), PNMW-14 (280-96075-4), PNMW-15 (280-96075-5), PNMW-16 (280-96075-6), and PNMW-2BD (280-96075-8) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/18/2017.

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

TestAmerica Job ID: 280-96075-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-96075-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.0015	J	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0022	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.042	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Beryllium	0.00068	J *	0.0010	0.00040	mg/L	1		6020A	Total Recoverable
Calcium	130	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00043	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0021	B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.011		0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00075	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.017		0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.10	B	0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	77		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.90		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	320		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1000		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-2B — Lab Sample ID: 280-96075-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.055	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00040	J	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.00070	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.19	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	89	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.00021	J	0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0022	B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0029	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00062	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0024	J B	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.038	B	0.0080	0.00016	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-2B (Continued) — Lab Sample ID: 280-96075-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	7.9	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	15		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.46	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	540		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-13 — Lab Sample ID: 280-96075-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.27		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00047	J	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.078	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	35	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0012		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0068	B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0079	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.0023	B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0024	J B	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.067	B	0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	0.99	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	37		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	370		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1000		20	5.5	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-96075-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.086	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00075	J	0.0020	0.00027	mg/L	1		6020A	Total Recoverable
Arsenic	0.0057		0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.21	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Beryllium	0.00097	J *	0.0010	0.00040	mg/L	1		6020A	Total Recoverable
Calcium	63	B	1.0	0.043	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-96075-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.0070		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.11	B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.018		0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.011	B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0041	J B	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.056	B	0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.0	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	270		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3800		40	11	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-96075-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00073	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.052	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	190	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0015		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.0013	J B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0034	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00065	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0022	J B	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.15	B	0.0080	0.00016	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	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.9	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.29	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	940		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	51		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-96075-6

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 280-96075-1

Client Sample ID: PNMW-16 (Continued) — Lab Sample ID: 280-96075-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.42		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00051	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.030	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	220	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Cobalt	0.0029		0.0010	0.00013	mg/L	1		6020A	Total Recoverable
Chromium	0.00063	J B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0033	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00017	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Lithium	0.18	B	0.0080	0.00016	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	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.8	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.25	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2BD — Lab Sample ID: 280-96075-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.055	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00049	J	0.0050	0.00035	mg/L	1		6020A	Total Recoverable
Barium	0.17	B	0.0050	0.00052	mg/L	1		6020A	Total Recoverable
Calcium	82	B	1.0	0.043	mg/L	1		6020A	Total Recoverable
Chromium	0.0014	J B	0.0020	0.00026	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0032	J	0.010	0.00051	mg/L	1		6020A	Total Recoverable
Lead	0.00020	J B	0.0010	0.00016	mg/L	1		6020A	Total Recoverable
Selenium	0.0023	J B	0.0050	0.00048	mg/L	1		6020A	Total Recoverable
Lithium	0.042	B	0.0080	0.00016	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	15		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.46	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	530		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-96075-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-96075-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-96075-1	PNMW-1B	Water	04/18/17 10:33	04/19/17 10:30
280-96075-2	PNMW-2B	Water	04/18/17 09:20	04/19/17 10:30
280-96075-3	PNMW-13	Water	04/19/17 07:30	04/19/17 10:30
280-96075-4	PNMW-14	Water	04/18/17 18:20	04/19/17 10:30
280-96075-5	PNMW-15	Water	04/18/17 14:55	04/19/17 10:30
280-96075-6	PNMW-16	Water	04/18/17 12:40	04/19/17 10:30
280-96075-8	PNMW-2BD	Water	04/18/17 09:35	04/19/17 10:30

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

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 12:52	1

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.055	J	0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 12:48	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27		0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 12:43	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.086	J	0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 13:32	1

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 13:28	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.42		0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 13:23	1

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.055	J	0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 13:14	1

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

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0015	J	0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:25	1
Arsenic	0.0022	J	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 16:43	1
Barium	0.042	B	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:25	1
Beryllium	0.00068	J *	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:25	1
Calcium	130	B	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:25	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:25	1
Cobalt	0.00043	J	0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:25	1

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

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.0021	B	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:25	1
Molybdenum	0.011		0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:25	1
Lead	0.00075	J B	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:25	1
Selenium	0.017		0.0050	0.00048	mg/L		04/26/17 14:00	05/02/17 17:21	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:25	1
Lithium	0.10	B	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 16:43	1

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00040	J	0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:29	1
Arsenic	0.00070	J	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 16:48	1
Barium	0.19	B	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:29	1
Beryllium	ND	*	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:29	1
Calcium	89	B	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:29	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:29	1
Cobalt	0.00021	J	0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:29	1
Chromium	0.0022	B	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:29	1
Molybdenum	0.0029	J	0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:29	1
Lead	0.00062	J B	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:29	1
Selenium	0.0024	J B	0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 16:48	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:29	1
Lithium	0.038	B	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 16:48	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00047	J	0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:33	1
Arsenic	0.0014	J	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 16:52	1
Barium	0.078	B	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:33	1
Beryllium	ND	*	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:33	1
Calcium	35	B	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:33	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:33	1
Cobalt	0.0012		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:33	1
Chromium	0.0068	B	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:33	1
Molybdenum	0.0079	J	0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:33	1
Lead	0.0023	B	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:33	1
Selenium	0.0024	J B	0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 16:52	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:33	1
Lithium	0.067	B	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 16:52	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00075	J	0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:46	1
Arsenic	0.0057		0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 17:04	1
Barium	0.21	B	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:46	1

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

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	**0.00097**	**J ***	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:46	1
Calcium	**63**	**B**	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:46	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:46	1
Cobalt	**0.0070**		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:46	1
Chromium	**0.11**	**B**	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:46	1
Molybdenum	**0.018**		0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:46	1
Lead	**0.011**	**B**	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:46	1
Selenium	**0.0041**	**J B**	0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 17:04	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:46	1
Lithium	**0.056**	**B**	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 17:04	1

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:50	1
Arsenic	**0.00073**	**J**	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 17:09	1
Barium	**0.052**	**B**	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:50	1
Beryllium	ND	*	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:50	1
Calcium	**190**	**B**	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:50	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:50	1
Cobalt	**0.0015**		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:50	1
Chromium	**0.0013**	**J B**	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:50	1
Molybdenum	**0.0034**	**J**	0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:50	1
Lead	**0.00065**	**J B**	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:50	1
Selenium	**0.0022**	**J B**	0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 17:09	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:50	1
Lithium	**0.15**	**B**	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 17:09	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 01:54	1
Arsenic	**0.00051**	**J**	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 17:13	1
Barium	**0.030**	**B**	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 01:54	1
Beryllium	ND	*	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 01:54	1
Calcium	**220**	**B**	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 01:54	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 01:54	1
Cobalt	**0.0029**		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 01:54	1
Chromium	**0.00063**	**J B**	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 01:54	1
Molybdenum	**0.0033**	**J**	0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 01:54	1
Lead	**0.00017**	**J B**	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 01:54	1
Selenium	ND		0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 17:13	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 01:54	1
Lithium	**0.18**	**B**	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 17:13	1

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

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 02:03	1
Arsenic	**0.00049**	**J**	0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 17:21	1
Barium	**0.17**	**B**	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 02:03	1
Beryllium	ND	*	0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 02:03	1
Calcium	**82**	**B**	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 02:03	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 02:03	1
Cobalt	ND		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 02:03	1
Chromium	**0.0014**	**J B**	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 02:03	1
Molybdenum	**0.0032**	**J**	0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 02:03	1
Lead	**0.00020**	**J B**	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 02:03	1
Selenium	**0.0023**	**J B**	0.0050	0.00048	mg/L		04/26/17 14:00	05/01/17 17:21	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 02:03	1
Lithium	**0.042**	**B**	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 17:21	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:44	1

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:46	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:48	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:51	1

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:53	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:55	1

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 21:00	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/21/17 08:27	1
Temperature	20.9	HF	1.0	1.0	Degrees C			04/21/17 08:27	1
Chloride	77		3.0	0.25	mg/L			05/10/17 13:04	1
Fluoride	0.90		0.50	0.060	mg/L			05/10/17 13:04	1
Sulfate	320		25	1.2	mg/L			05/11/17 01:36	5
Total Dissolved Solids (TDS)	1000		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/20/17 15:14	1

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/21/17 08:32	1
Temperature	21.1	HF	1.0	1.0	Degrees C			04/21/17 08:32	1
Chloride	15		3.0	0.25	mg/L			05/10/17 13:21	1
Fluoride	0.46	J	0.50	0.060	mg/L			05/10/17 13:21	1
Sulfate	26		5.0	0.23	mg/L			05/10/17 13:21	1
Total Dissolved Solids (TDS)	540		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/20/17 15:14	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			04/21/17 08:37	1
Temperature	21.3	HF	1.0	1.0	Degrees C			04/21/17 08:37	1
Chloride	0.99	J	3.0	0.25	mg/L			05/10/17 14:28	1
Fluoride	1.5		0.50	0.060	mg/L			05/10/17 14:28	1
Sulfate	37		5.0	0.23	mg/L			05/10/17 14:28	1
Total Dissolved Solids (TDS)	370		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	1000		20	5.5	mg/L			04/20/17 15:14	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			04/21/17 08:42	1
Temperature	21.6	HF	1.0	1.0	Degrees C			04/21/17 08:42	1
Chloride	2.0	J	3.0	0.25	mg/L			05/10/17 14:45	1
Fluoride	1.1		0.50	0.060	mg/L			05/10/17 14:45	1
Sulfate	25		5.0	0.23	mg/L			05/10/17 14:45	1
Total Dissolved Solids (TDS)	270		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	3800		40	11	mg/L			04/20/17 15:14	1

General Chemistry

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/21/17 08:47	1
Temperature	21.4	HF	1.0	1.0	Degrees C			04/21/17 08:47	1
Chloride	2.9	J	3.0	0.25	mg/L			05/10/17 15:01	1
Fluoride	0.29	J	0.50	0.060	mg/L			05/10/17 15:01	1
Sulfate	940		50	2.3	mg/L			05/11/17 01:53	10
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	51		4.0	1.1	mg/L			04/20/17 15:14	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/21/17 08:52	1
Temperature	21.2	HF	1.0	1.0	Degrees C			04/21/17 08:52	1
Chloride	1.8	J	3.0	0.25	mg/L			05/10/17 15:18	1
Fluoride	0.25	J	0.50	0.060	mg/L			05/10/17 15:18	1
Sulfate	1100		50	2.3	mg/L			05/11/17 02:10	10
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	11		4.0	1.1	mg/L			04/20/17 15:14	1

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/21/17 09:02	1
Temperature	21.3	HF	1.0	1.0	Degrees C			04/21/17 09:02	1
Chloride	15		3.0	0.25	mg/L			05/10/17 16:25	1
Fluoride	0.46	J	0.50	0.060	mg/L			05/10/17 16:25	1
Sulfate	26		5.0	0.23	mg/L			05/10/17 16:25	1
Total Dissolved Solids (TDS)	530		10	4.7	mg/L			04/21/17 16:15	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			04/20/17 15:14	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.180		0.0826	0.0841	1.00	0.0901	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*04/24/17 11:35*	*05/16/17 14:18*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.275		0.0945	0.0977	1.00	0.0770	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	04/24/17 11:35	05/16/17 14:18	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.164		0.0806	0.0820	1.00	0.0900	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110	04/24/17 11:35	05/16/17 14:18	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.496		0.199	0.203	1.00	0.223	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110	04/24/17 11:35	05/16/17 14:18	1

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.312		0.0972	0.101	1.00	0.0739	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110	04/24/17 11:35	05/16/17 14:18	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.393		0.120	0.125	1.00	0.118	pCi/L	04/24/17 11:35	05/16/17 14:18	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/24/17 11:35	05/16/17 14:18	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.200		0.0866	0.0884	1.00	0.0923	pCi/L	04/24/17 11:35	05/16/17 14:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*04/24/17 11:35*	*05/16/17 14:19*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.226	U	0.193	0.194	1.00	0.308	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*87.9*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.666		0.226	0.234	1.00	0.301	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*89.3*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0602	U	0.191	0.191	1.00	0.331	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*90.5*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.10**		0.444	0.455	1.00	0.617	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.9*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*90.1*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.170	U	0.174	0.175	1.00	0.284	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*86.7*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.239	U	0.186	0.187	1.00	0.293	pCi/L	04/24/17 11:55	05/09/17 14:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*
Y Carrier	*92.0*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:54*	*1*

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.407**		0.179	0.183	1.00	0.249	pCi/L	04/24/17 11:55	05/09/17 14:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:48*	*1*
Y Carrier	*92.7*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:48*	*1*

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

Client Sample ID: PNMW-1B
Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.407		0.210	0.211	5.00	0.308	pCi/L		05/18/17 14:07	1

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.941		0.245	0.253	5.00	0.301	pCi/L		05/18/17 14:07	1

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.225	U	0.207	0.208	5.00	0.331	pCi/L		05/18/17 14:07	1

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.59		0.486	0.499	5.00	0.617	pCi/L		05/18/17 14:07	1

Client Sample ID: PNMW-15
Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.482		0.200	0.202	5.00	0.284	pCi/L		05/18/17 14:07	1

Client Sample ID: PNMW-16
Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.632		0.221	0.225	5.00	0.293	pCi/L		05/18/17 14:07	1

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

TestAmerica Job ID: 280-96075-1

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

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.607		0.199	0.203	5.00	0.249	pCi/L		05/18/17 14:07	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-276308/1-A
Matrix: Water
Analysis Batch: 276536

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		04/26/17 14:00	04/27/17 12:12	1

Lab Sample ID: LCS 240-276308/2-A
Matrix: Water
Analysis Batch: 276536

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276308

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

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-276308/1-A
Matrix: Water
Analysis Batch: 276891

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00027	mg/L		04/26/17 14:00	04/29/17 00:56	1
Barium	0.00194	J	0.0050	0.00052	mg/L		04/26/17 14:00	04/29/17 00:56	1
Beryllium	ND		0.0010	0.00040	mg/L		04/26/17 14:00	04/29/17 00:56	1
Calcium	0.416	J	1.0	0.043	mg/L		04/26/17 14:00	04/29/17 00:56	1
Cadmium	ND		0.0010	0.00031	mg/L		04/26/17 14:00	04/29/17 00:56	1
Cobalt	ND		0.0010	0.00013	mg/L		04/26/17 14:00	04/29/17 00:56	1
Chromium	0.000577	J	0.0020	0.00026	mg/L		04/26/17 14:00	04/29/17 00:56	1
Molybdenum	ND		0.010	0.00051	mg/L		04/26/17 14:00	04/29/17 00:56	1
Lead	0.000246	J	0.0010	0.00016	mg/L		04/26/17 14:00	04/29/17 00:56	1
Thallium	ND		0.0010	0.00028	mg/L		04/26/17 14:00	04/29/17 00:56	1

Lab Sample ID: MB 240-276308/1-A
Matrix: Water
Analysis Batch: 277066

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00035	mg/L		04/26/17 14:00	05/01/17 16:19	1
Lithium	0.000449	J	0.0080	0.00016	mg/L		04/26/17 14:00	05/01/17 16:19	1

Lab Sample ID: MB 240-276308/1-A
Matrix: Water
Analysis Batch: 277254

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050	0.00048	mg/L		04/26/17 14:00	05/02/17 17:12	1

Lab Sample ID: LCS 240-276308/3-A
Matrix: Water
Analysis Batch: 276891

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0910		mg/L		91	80 - 120
Barium	1.00	1.07		mg/L		107	80 - 120

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

Lab Sample ID: LCS 240-276308/3-A
Matrix: Water
Analysis Batch: 276891

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	1.00	1.21	*	mg/L		121	80 - 120
Calcium	10.0	9.04		mg/L		90	80 - 120
Cadmium	1.00	1.06		mg/L		106	80 - 120
Cobalt	1.00	1.03		mg/L		103	80 - 120
Chromium	1.00	0.973		mg/L		97	80 - 120
Molybdenum	0.100	0.0814		mg/L		81	80 - 120
Lead	1.00	1.07		mg/L		107	80 - 120
Thallium	0.250	0.266		mg/L		106	80 - 120

Lab Sample ID: LCS 240-276308/3-A
Matrix: Water
Analysis Batch: 277066

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.901		mg/L		90	80 - 120
Lithium	0.100	0.120		mg/L		120	80 - 120

Lab Sample ID: LCS 240-276308/3-A
Matrix: Water
Analysis Batch: 277254

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276308

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	1.00	1.20		mg/L		120	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-373101/1-A
Matrix: Water
Analysis Batch: 373279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373101

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		05/11/17 11:20	05/11/17 20:39	1

Lab Sample ID: LCS 280-373101/2-A
Matrix: Water
Analysis Batch: 373279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373101

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00496		mg/L		99	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-370429/4
Matrix: Water
Analysis Batch: 370429

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 280-372936/6
Matrix: Water
Analysis Batch: 372936

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	0.25	mg/L			05/10/17 10:29	1
Fluoride	ND		0.50	0.060	mg/L			05/10/17 10:29	1
Sulfate	ND		5.0	0.23	mg/L			05/10/17 10:29	1

Lab Sample ID: LCS 280-372936/4
Matrix: Water
Analysis Batch: 372936

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.20		mg/L		104	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-372936/5
Matrix: Water
Analysis Batch: 372936

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.21		mg/L		104	90 - 110	0	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-372936/3
Matrix: Water
Analysis Batch: 372936

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.01	J	mg/L		80	50 - 150
Fluoride	0.200	0.155	J	mg/L		77	50 - 150
Sulfate	2.50	1.96	J	mg/L		78	50 - 150

Lab Sample ID: 280-96075-2 MS
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	15		25.0	40.9		mg/L		105	80 - 120
Fluoride	0.46	J	5.00	5.40		mg/L		99	80 - 120
Sulfate	26		25.0	52.6		mg/L		105	80 - 120

Lab Sample ID: 280-96075-2 MSD
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	15		25.0	40.9		mg/L		105	80 - 120	0	20
Fluoride	0.46	J	5.00	5.38		mg/L		99	80 - 120	0	20
Sulfate	26		25.0	52.4		mg/L		104	80 - 120	0	20

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

Lab Sample ID: 280-96075-4 MS
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.0	J	25.0	28.1		mg/L		104	80 - 120
Fluoride	1.1		5.00	6.01		mg/L		97	80 - 120
Sulfate	25		25.0	51.3		mg/L		104	80 - 120

Lab Sample ID: 280-96075-4 MSD
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.0	J	25.0	28.1		mg/L		104	80 - 120	0	20
Fluoride	1.1		5.00	5.99		mg/L		97	80 - 120	0	20
Sulfate	25		25.0	50.9		mg/L		103	80 - 120	1	20

Lab Sample ID: 280-96075-2 DU
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	15		14.7		mg/L		0.05	15
Fluoride	0.46	J	0.455	J	mg/L		0.4	15
Sulfate	26		26.8		mg/L		1	15

Lab Sample ID: 280-96075-4 DU
Matrix: Water
Analysis Batch: 372936

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	2.0	J	1.98	J	mg/L		1	15
Fluoride	1.1		1.13		mg/L		1	15
Sulfate	25		25.0		mg/L		0.8	15

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

Lab Sample ID: MB 280-370453/1
Matrix: Water
Analysis Batch: 370453

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			04/21/17 16:15	1

Lab Sample ID: LCS 280-370453/2
Matrix: Water
Analysis Batch: 370453

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	508		mg/L		102	86 - 110

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

Lab Sample ID: 280-96075-1 DU
Matrix: Water
Analysis Batch: 370453

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	1000			1010		mg/L				0.6	10

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

Lab Sample ID: MB 280-370252/2
Matrix: Water
Analysis Batch: 370252

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/20/17 15:14	1

Lab Sample ID: LCS 280-370252/1
Matrix: Water
Analysis Batch: 370252

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	95.6		mg/L		96	86 - 114		

Lab Sample ID: 280-96075-6 DU
Matrix: Water
Analysis Batch: 370252

Client Sample ID: PNMW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	11			10.4		mg/L				4	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-305139/1-A
Matrix: Water
Analysis Batch: 309084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 305139

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1194		0.0826	0.0833	1.00	0.117	pCi/L	04/24/17 11:35	05/17/17 09:53	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*04/24/17 11:35*	*05/17/17 09:53*	*1*

Lab Sample ID: LCS 160-305139/2-A
Matrix: Water
Analysis Batch: 308713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 305139

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.23		1.07	1.00	0.0875	pCi/L	90	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-305141/1-A
Matrix: Water
Analysis Batch: 307788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 305141

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.01356	U	0.175	0.175	1.00	0.311	pCi/L	04/24/17 11:55	05/09/17 14:52	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:52*	*1*
Y Carrier	*86.4*		*40 - 110*	*04/24/17 11:55*	*05/09/17 14:52*	*1*

Lab Sample ID: LCS 160-305141/2-A
Matrix: Water
Analysis Batch: 307788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 305141

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.5	12.72		1.36	1.00	0.298	pCi/L	94	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*88.2*		*40 - 110*

Metals

Prep Batch: 276308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total Recoverable	Water	3005A	
280-96075-2	PNMW-2B	Total Recoverable	Water	3005A	
280-96075-3	PNMW-13	Total Recoverable	Water	3005A	
280-96075-4	PNMW-14	Total Recoverable	Water	3005A	
280-96075-5	PNMW-15	Total Recoverable	Water	3005A	
280-96075-6	PNMW-16	Total Recoverable	Water	3005A	
280-96075-8	PNMW-2BD	Total Recoverable	Water	3005A	
MB 240-276308/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-276308/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-276308/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 276536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total Recoverable	Water	6010C	276308
280-96075-2	PNMW-2B	Total Recoverable	Water	6010C	276308
280-96075-3	PNMW-13	Total Recoverable	Water	6010C	276308
280-96075-4	PNMW-14	Total Recoverable	Water	6010C	276308
280-96075-5	PNMW-15	Total Recoverable	Water	6010C	276308
280-96075-6	PNMW-16	Total Recoverable	Water	6010C	276308
280-96075-8	PNMW-2BD	Total Recoverable	Water	6010C	276308
MB 240-276308/1-A	Method Blank	Total Recoverable	Water	6010C	276308
LCS 240-276308/2-A	Lab Control Sample	Total Recoverable	Water	6010C	276308

Analysis Batch: 276891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total Recoverable	Water	6020A	276308
280-96075-2	PNMW-2B	Total Recoverable	Water	6020A	276308
280-96075-3	PNMW-13	Total Recoverable	Water	6020A	276308
280-96075-4	PNMW-14	Total Recoverable	Water	6020A	276308
280-96075-5	PNMW-15	Total Recoverable	Water	6020A	276308
280-96075-6	PNMW-16	Total Recoverable	Water	6020A	276308
280-96075-8	PNMW-2BD	Total Recoverable	Water	6020A	276308
MB 240-276308/1-A	Method Blank	Total Recoverable	Water	6020A	276308
LCS 240-276308/3-A	Lab Control Sample	Total Recoverable	Water	6020A	276308

Analysis Batch: 277066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total Recoverable	Water	6020A	276308
280-96075-2	PNMW-2B	Total Recoverable	Water	6020A	276308
280-96075-3	PNMW-13	Total Recoverable	Water	6020A	276308
280-96075-4	PNMW-14	Total Recoverable	Water	6020A	276308
280-96075-5	PNMW-15	Total Recoverable	Water	6020A	276308
280-96075-6	PNMW-16	Total Recoverable	Water	6020A	276308
280-96075-8	PNMW-2BD	Total Recoverable	Water	6020A	276308
MB 240-276308/1-A	Method Blank	Total Recoverable	Water	6020A	276308
LCS 240-276308/3-A	Lab Control Sample	Total Recoverable	Water	6020A	276308

Analysis Batch: 277254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total Recoverable	Water	6020A	276308
MB 240-276308/1-A	Method Blank	Total Recoverable	Water	6020A	276308

Metals (Continued)

Analysis Batch: 277254 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-276308/3-A	Lab Control Sample	Total Recoverable	Water	6020A	276308

Prep Batch: 373101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	7470A	
280-96075-2	PNMW-2B	Total/NA	Water	7470A	
280-96075-3	PNMW-13	Total/NA	Water	7470A	
280-96075-4	PNMW-14	Total/NA	Water	7470A	
280-96075-5	PNMW-15	Total/NA	Water	7470A	
280-96075-6	PNMW-16	Total/NA	Water	7470A	
280-96075-8	PNMW-2BD	Total/NA	Water	7470A	
MB 280-373101/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-373101/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 373279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	7470A	373101
280-96075-2	PNMW-2B	Total/NA	Water	7470A	373101
280-96075-3	PNMW-13	Total/NA	Water	7470A	373101
280-96075-4	PNMW-14	Total/NA	Water	7470A	373101
280-96075-5	PNMW-15	Total/NA	Water	7470A	373101
280-96075-6	PNMW-16	Total/NA	Water	7470A	373101
280-96075-8	PNMW-2BD	Total/NA	Water	7470A	373101
MB 280-373101/1-A	Method Blank	Total/NA	Water	7470A	373101
LCS 280-373101/2-A	Lab Control Sample	Total/NA	Water	7470A	373101

General Chemistry

Analysis Batch: 370252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-96075-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-96075-3	PNMW-13	Total/NA	Water	SM 2540D	
280-96075-4	PNMW-14	Total/NA	Water	SM 2540D	
280-96075-5	PNMW-15	Total/NA	Water	SM 2540D	
280-96075-6	PNMW-16	Total/NA	Water	SM 2540D	
280-96075-8	PNMW-2BD	Total/NA	Water	SM 2540D	
MB 280-370252/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-370252/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-96075-6 DU	PNMW-16	Total/NA	Water	SM 2540D	

Analysis Batch: 370429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	9040B	
280-96075-2	PNMW-2B	Total/NA	Water	9040B	
280-96075-3	PNMW-13	Total/NA	Water	9040B	
280-96075-4	PNMW-14	Total/NA	Water	9040B	
280-96075-5	PNMW-15	Total/NA	Water	9040B	
280-96075-6	PNMW-16	Total/NA	Water	9040B	
280-96075-8	PNMW-2BD	Total/NA	Water	9040B	

General Chemistry (Continued)

Analysis Batch: 370429 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-370429/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 370453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-96075-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-96075-3	PNMW-13	Total/NA	Water	SM 2540C	
280-96075-4	PNMW-14	Total/NA	Water	SM 2540C	
280-96075-5	PNMW-15	Total/NA	Water	SM 2540C	
280-96075-6	PNMW-16	Total/NA	Water	SM 2540C	
280-96075-8	PNMW-2BD	Total/NA	Water	SM 2540C	
MB 280-370453/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-370453/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-96075-1 DU	PNMW-1B	Total/NA	Water	SM 2540C	

Analysis Batch: 372936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	9056A	
280-96075-1	PNMW-1B	Total/NA	Water	9056A	
280-96075-2	PNMW-2B	Total/NA	Water	9056A	
280-96075-3	PNMW-13	Total/NA	Water	9056A	
280-96075-4	PNMW-14	Total/NA	Water	9056A	
280-96075-5	PNMW-15	Total/NA	Water	9056A	
280-96075-5	PNMW-15	Total/NA	Water	9056A	
280-96075-6	PNMW-16	Total/NA	Water	9056A	
280-96075-6	PNMW-16	Total/NA	Water	9056A	
280-96075-8	PNMW-2BD	Total/NA	Water	9056A	
MB 280-372936/6	Method Blank	Total/NA	Water	9056A	
LCS 280-372936/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-372936/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-372936/3	Lab Control Sample	Total/NA	Water	9056A	
280-96075-2 MS	PNMW-2B	Total/NA	Water	9056A	
280-96075-2 MSD	PNMW-2B	Total/NA	Water	9056A	
280-96075-4 MS	PNMW-14	Total/NA	Water	9056A	
280-96075-4 MSD	PNMW-14	Total/NA	Water	9056A	
280-96075-2 DU	PNMW-2B	Total/NA	Water	9056A	
280-96075-4 DU	PNMW-14	Total/NA	Water	9056A	

Rad

Prep Batch: 305139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-96075-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-96075-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-96075-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-96075-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-96075-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-96075-8	PNMW-2BD	Total/NA	Water	PrecSep-21	
MB 160-305139/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Rad (Continued)

Prep Batch: 305139 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-305139/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 305141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96075-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-96075-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-96075-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-96075-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-96075-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-96075-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-96075-8	PNMW-2BD	Total/NA	Water	PrecSep_0	
MB 160-305141/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-305141/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Client Sample ID: PNMW-1B

Date Collected: 04/18/17 10:33
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 12:52	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:25	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 16:43	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277254	05/02/17 17:21	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:44	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 08:27	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 13:04	AFB	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	372936	05/11/17 01:36	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.25 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.25 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 12:48	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:29	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 16:48	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:46	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 08:32	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 13:21	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.77 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.77 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL

Client Sample ID: PNMW-2B
Date Collected: 04/18/17 09:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-13
Date Collected: 04/19/17 07:30
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 12:43	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:33	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 16:52	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:48	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 08:37	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 14:28	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	50 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.04 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.04 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-14
Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 13:32	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:46	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 17:04	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:51	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 08:42	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 14:45	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	25 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN

Lab Chronicle

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

TestAmerica Job ID: 280-96075-1

Client Sample ID: PNMW-14

Date Collected: 04/18/17 18:20
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			499.35 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			499.35 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-15

Date Collected: 04/18/17 14:55
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-5

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	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 13:28	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:50	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 17:09	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:53	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 08:47	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 15:01	AFB	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	372936	05/11/17 01:53	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.59 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.59 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-16

Date Collected: 04/18/17 12:40
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-6

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	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 13:23	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 01:54	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 17:13	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 20:55	CDH	TAL DEN

Lab Chronicle

Client: HDR Inc
TestAmerica Job ID: 280-96075-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			370429	04/21/17 08:52	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 15:18	AFB	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	372936	05/11/17 02:10	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.85 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.85 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307788	05/09/17 14:54	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Client Sample ID: PNMW-2BD
Date Collected: 04/18/17 09:35
Date Received: 04/19/17 10:30

Lab Sample ID: 280-96075-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			276536	04/27/17 13:14	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			276891	04/29/17 02:03	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	276308	04/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			277066	05/01/17 17:21	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	373101	05/11/17 11:20	CDH	TAL DEN
Total/NA	Analysis	7470A		1			373279	05/11/17 21:00	CDH	TAL DEN
Total/NA	Analysis	9040B		1			370429	04/21/17 09:02	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372936	05/10/17 16:25	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	370453	04/21/17 16:15	CMO	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	370252	04/20/17 15:14	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.95 mL	1.0 g	305139	04/24/17 11:35	MBC	TAL SL
Total/NA	Analysis	9315		1			308715	05/16/17 14:19	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.95 mL	1.0 g	305141	04/24/17 11:55	MBC	TAL SL
Total/NA	Analysis	9320		1			307795	05/09/17 14:48	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			309377	05/18/17 14:07	EAW	TAL SL

Laboratory References:

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

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

TAL SL = 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

TestAmerica Job ID: 280-96075-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-96075-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

280-96075 Chain of Custody

TestAmerica LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: N. Hanrahan	Lab PM: Rothmeyer, Stephanie K	No:
Client Contact: ~~Anna Lundin~~ Matt Rohr	Phone: (507)250-1774	E-Mail: stephanie.rothmeyer@testamericainc.com	Page 1 of 1
Company: HDR Inc			Job #:
Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:		
City: Englewood	TAT Requested (days): ~~Standard~~ ~~5 Day~~ Standard		
State, Zip: CO, 80112			
Phone: ~~720-633-2380(Tel)~~ (907)644-2078	PO #: DEN-001		
Email: ~~anna.lundin@hdrinc.com~~ Matthew.Rohr@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 - Na2S2SO3, 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)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	4/18/17	1033	G	Water		N	X	X	X	X	X	7	
PNMW-2B	4/18/17	0920	G	Water		N	X	X	X	X	X	7	
PNMW-13	4/19/17	0730	G	Water		N	X	X	X	X	X	7	
PNMW-14	4/18/17	~~1745~~ 1820 NH	G	Water		N	X	X	X	X	X	7	Sampled @ 1820
PNMW-15	4/18/17	1455	G	Water		N	X	X	X	X	X	7	
PNMW-16	4/18/17	1240	G	Water		N	X	X	X	X	X	7	
PNMW-17	4/18/17	1745	G	Water		N	X	X	X	X	X	7	
~~Field Duplicate~~ PNMW-2BD	4/18/17	0935	G	Water		N	X	X	X	X	X	7	
~~Equipment Blank~~ PNMW-17EB	4/18/17	1745	G	Water		N	X	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
	4/19/17 1030	HDR		4-19-17 1030	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 2.3,2.4,1.3,0.0 IR#7 JS 4/19/17

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

Chain of Custody Record

280-96075 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	COC No: 280-395142.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Job #: 280-96075-1
Address: 13715 Rider Trail North,	Due Date Requested: 5/17/2017		
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 CCR - Pawnee Station	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-96075-1)	4/18/17	10:33 Mountain		Water			X	X	X	2	
PNMW-2B (280-96075-2)	4/18/17	09:20 Mountain		Water			X	X	X	2	
PNMW-13 (280-96075-3)	4/19/17	07:30 Mountain		Water			X	X	X	2	
PNMW-14 (280-96075-4)	4/18/17	18:20 Mountain		Water			X	X	X	2	
PNMW-15 (280-96075-5)	4/18/17	14:55 Mountain		Water			X	X	X	2	
PNMW-16 (280-96075-6)	4/18/17	12:40 Mountain		Water			X	X	X	2	
PNMW-17 (280-96075-7)	4/18/17	17:15 Mountain		Water			X	X	X	2	
PNMW-2BD (280-96075-8)	4/18/17	09:35 Mountain		Water			X	X	X	2	
PNMW-17EB (280-96075-9)	4/18/17	17:45 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: Patricia Tum	Date/Time: 4/20/17 1525	Company TAD	Received by: Jill Clark	Date/Time: 4.21.17 0905	Company TASR
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:

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

3.4/C3.1

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-395141.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-96075-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 5/12/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							S9
PNMW-1B (280-96075-1)	4/18/17	10:33 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-96075-2)	4/18/17	09:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-96075-3)	4/19/17	07:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-96075-4)	4/18/17	18:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-96075-5)	4/18/17	14:55 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-96075-6)	4/18/17	12:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-96075-7)	4/18/17	17:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2BD (280-96075-8)	4/18/17	09:35 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17EB (280-96075-9)	4/18/17	17:45 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
Natasha Mu	4/20/17 1620	TAD		4/21/17 930	TA
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:

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

Canton Facility

Client TA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 4/21/17 Opened on 4/21/17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-8 (CF **-0.3** °C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 3.1 °C
   IR GUN #36 (CF **+0.8**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
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 11-15 have been checked at the originating laboratory.
11. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC682547**
12. Were VOAs on the COC? Yes No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

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

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

15. 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)

16. SAMPLE PRESERVATION

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

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-96075-1

Login Number: 96075
List Number: 1
Creator: True, Joshua A

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-96075-1

Login Number: 96075
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 04/21/17 11:06 AM

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.	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	18.0
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.	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

TestAmerica Job ID: 280-96075-1

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-96075-1	PNMW-1B	103
280-96075-2	PNMW-2B	102
280-96075-3	PNMW-13	97.6
280-96075-4	PNMW-14	95.9
280-96075-5	PNMW-15	108
280-96075-6	PNMW-16	101
280-96075-8	PNMW-2BD	104
LCS 160-305139/2-A	Lab Control Sample	101
MB 160-305139/1-A	Method Blank	106

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-96075-1	PNMW-1B	103	87.9
280-96075-2	PNMW-2B	102	89.3
280-96075-3	PNMW-13	97.6	90.5
280-96075-4	PNMW-14	95.9	90.1
280-96075-5	PNMW-15	108	86.7
280-96075-6	PNMW-16	101	92.0
280-96075-8	PNMW-2BD	104	92.7
LCS 160-305141/2-A	Lab Control Sample	101	88.2
MB 160-305141/1-A	Method Blank	106	86.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-97537-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 3:57:09 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-97537-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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: 280-97537-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-97537-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 5/24/2017 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.9º C, 1.8º C, 3.0º C and 4.7º C.

The turnaround time for the analysis TestAmerica St. Louis is performing has been logged as the standard 22 business days; however, please note that the data may be 8 business days late due to current laboratory capacity.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/27/2017 and analyzed on 05/30/2017.

Boron was detected in method blank MB 240-280697/1-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.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/27/2017 and analyzed on 06/03/2017 and 06/05/2017.

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

TOTAL MERCURY
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/07/2017.

Job ID: 280-97537-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/26/2017.

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 (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/26/2017.

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

CORROSIVITY (PH)
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 06/16/2017.

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

ANIONS (28 DAYS)
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 06/16/2017, 06/17/2017 and 06/19/2017.

Chloride and Fluoride were detected in method blank MB 280-377582/6 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Samples PNMW-1B (280-97537-1)[5X], PNMW-15 (280-97537-5)[20X], PNMW-16 (280-97537-6)[20X], and PNMW-16D (280-97537-8) [20X] 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-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/31/2017 and analyzed on 06/22/2017.

The following sample was reduced due to heavy amounts of sediment making sample murky and brown: PNMW-14 (280-97537-4).

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

RADIUM-228
Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/31/2017 and analyzed on 06/13/2017.

The following sample was reduced due to heavy amounts of sediment making sample murky and brown: PNMW-14 (280-97537-4).

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

Job ID: 280-97537-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

RADIUM-226/RADIUM-228 (GFPC)

Samples PNMW-1B (280-97537-1), PNMW-2B (280-97537-2), PNMW-13 (280-97537-3), PNMW-14 (280-97537-4), PNMW-15 (280-97537-5), PNMW-16 (280-97537-6), PNMW-16D (280-97537-8) and PNMW-14EB (280-97537-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/22/2017.

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-97537-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.27	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0026	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.042		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	120		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0029		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0051	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.018		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.073		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	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	78	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.66	B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	300		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1000		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: PNMW-2B — Lab Sample ID: 280-97537-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.058	J B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00080	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.15		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	81		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0020		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0036	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0025	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.030		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	11	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.50	B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	21		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	530		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: PNMW-13 — Lab Sample ID: 280-97537-3

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-97537-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.27	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0027	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.12		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00048	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	41		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0024		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.012		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0071	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0060		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0020	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.052		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	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	1.9	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.2	B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	35		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	370		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	120		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-97537-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.088	J B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0054		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.22		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.0010		0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	71		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0068		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.030		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0073	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.011		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0023	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.037		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-97537-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.4	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.96	B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	22		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	280		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	700		14	3.9	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-97537-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.42	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0020	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.057		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	190		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0021		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0046		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0020	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0017		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0064		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.11		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	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.6	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.23	J B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1300		100	4.6	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	140		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-97537-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0010	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.038		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	230		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0035		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0017	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0059	J	0.010	0.0011	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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-16 (Continued) — Lab Sample ID: 280-97537-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.11		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	3.2	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.31	J B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		100	4.6	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	61		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16D — Lab Sample ID: 280-97537-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.42	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0018	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.061		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	230		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0049		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0075		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0056	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0027		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.12		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	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.1	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.30	J B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		100	4.6	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	38		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14EB — Lab Sample ID: 280-97537-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	6.5	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	0.71	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.074	J B	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1.8	J	5.0	0.23	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-97537-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-97537-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-97537-1	PNMW-1B	Water	05/23/17 19:05	05/24/17 17:30
280-97537-2	PNMW-2B	Water	05/24/17 08:50	05/24/17 17:30
280-97537-3	PNMW-13	Water	05/24/17 14:30	05/24/17 17:30
280-97537-4	PNMW-14	Water	05/24/17 14:00	05/24/17 17:30
280-97537-5	PNMW-15	Water	05/24/17 12:30	05/24/17 17:30
280-97537-6	PNMW-16	Water	05/23/17 17:40	05/24/17 17:30
280-97537-8	PNMW-16D	Water	05/23/17 17:48	05/24/17 17:30
280-97537-9	PNMW-14EB	Water	05/23/17 15:40	05/24/17 17:30

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

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27	B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 13:29	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.058	J B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 13:34	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27	B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:27	1

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.088	J B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:32	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.42	B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:36	1

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41	B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:41	1

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.42	B	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:50	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 12:54	1

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

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 01:50	1

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

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0026**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 01:50	1
Barium	**0.042**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 01:50	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 01:50	1
Calcium	**120**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 01:50	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 01:50	1
Cobalt	ND		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 01:50	1
Chromium	**0.0029**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 01:50	1
Molybdenum	**0.0051**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 01:50	1
Lead	ND		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:29	1
Selenium	**0.018**		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 01:50	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 01:50	1
Lithium	**0.073**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 01:50	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 01:54	1
Arsenic	**0.00080**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 01:54	1
Barium	**0.15**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 01:54	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 01:54	1
Calcium	**81**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 01:54	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 01:54	1
Cobalt	ND		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 01:54	1
Chromium	**0.0020**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 01:54	1
Molybdenum	**0.0036**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 01:54	1
Lead	ND		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:33	1
Selenium	**0.0025**	**J**	0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 01:54	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 01:54	1
Lithium	**0.030**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 01:54	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 01:58	1
Arsenic	**0.0027**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 01:58	1
Barium	**0.12**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 01:58	1
Beryllium	**0.00048**	**J**	0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 01:58	1
Calcium	**41**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 01:58	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 01:58	1
Cobalt	**0.0024**		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 01:58	1
Chromium	**0.012**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 01:58	1
Molybdenum	**0.0071**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 01:58	1
Lead	**0.0060**		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:38	1
Selenium	**0.0020**	**J**	0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 01:58	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 01:58	1
Lithium	**0.052**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 01:58	1

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

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 02:02	1
Arsenic	**0.0054**		0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 02:02	1
Barium	**0.22**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 02:02	1
Beryllium	**0.0010**		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 02:02	1
Calcium	**71**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 02:02	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 02:02	1
Cobalt	**0.0068**		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 02:02	1
Chromium	**0.030**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 02:02	1
Molybdenum	**0.0073**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 02:02	1
Lead	**0.011**		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:42	1
Selenium	**0.0023**	**J**	0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 02:02	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 02:02	1
Lithium	**0.037**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 02:02	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 02:15	1
Arsenic	**0.0020**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 02:15	1
Barium	**0.057**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 02:15	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 02:15	1
Calcium	**190**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 02:15	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 02:15	1
Cobalt	**0.0021**		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 02:15	1
Chromium	**0.0046**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 02:15	1
Molybdenum	**0.0020**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 02:15	1
Lead	**0.0017**		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:46	1
Selenium	**0.0064**		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 02:15	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 02:15	1
Lithium	**0.11**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 02:15	1

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 02:19	1
Arsenic	**0.0010**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 02:19	1
Barium	**0.038**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 02:19	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 02:19	1
Calcium	**230**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 02:19	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 02:19	1
Cobalt	**0.0035**		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 02:19	1
Chromium	**0.0017**	**J**	0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 02:19	1
Molybdenum	**0.0059**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 02:19	1
Lead	ND		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:50	1
Selenium	ND		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 02:19	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 02:19	1
Lithium	**0.11**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 02:19	1

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

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 02:28	1
Arsenic	**0.0018**	**J**	0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 02:28	1
Barium	**0.061**		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 02:28	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 02:28	1
Calcium	**230**		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 02:28	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 02:28	1
Cobalt	**0.0049**		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 02:28	1
Chromium	**0.0075**		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 02:28	1
Molybdenum	**0.0056**	**J**	0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 02:28	1
Lead	**0.0027**		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 17:07	1
Selenium	ND		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 02:28	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 02:28	1
Lithium	**0.12**		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 02:28	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 02:32	1
Arsenic	ND		0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 02:32	1
Barium	ND		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 02:32	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 02:32	1
Calcium	ND		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 02:32	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 02:32	1
Cobalt	ND		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 02:32	1
Chromium	ND		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 02:32	1
Molybdenum	ND		0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 02:32	1
Lead	ND		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 17:11	1
Selenium	ND		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 02:32	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 02:32	1
Lithium	ND		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 02:32	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:37	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:40	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:42	1

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:44	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:46	1

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:48	1

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:57	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 16:00	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			06/16/17 07:17	1
Temperature	19.9	HF	1.0	1.0	Degrees C			06/16/17 07:17	1
Chloride	78	B	3.0	0.25	mg/L			06/16/17 20:04	1
Fluoride	0.66	B	0.50	0.060	mg/L			06/16/17 20:04	1
Sulfate	300		25	1.2	mg/L			06/17/17 12:59	5
Total Dissolved Solids (TDS)	1000		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			06/16/17 07:32	1

General Chemistry (Continued)

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	20.5	HF	1.0	1.0	Degrees C			06/16/17 07:32	1
Chloride	11	B	3.0	0.25	mg/L			06/16/17 20:23	1
Fluoride	0.50	B	0.50	0.060	mg/L			06/16/17 20:23	1
Sulfate	21		5.0	0.23	mg/L			06/16/17 20:23	1
Total Dissolved Solids (TDS)	530		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			06/16/17 07:12	1
Temperature	19.5	HF	1.0	1.0	Degrees C			06/16/17 07:12	1
Chloride	1.9	J B	3.0	0.25	mg/L			06/16/17 21:43	1
Fluoride	1.2	B	0.50	0.060	mg/L			06/16/17 21:43	1
Sulfate	35		5.0	0.23	mg/L			06/16/17 21:43	1
Total Dissolved Solids (TDS)	370		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	120		4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			06/16/17 07:37	1
Temperature	20.3	HF	1.0	1.0	Degrees C			06/16/17 07:37	1
Chloride	2.4	J B	3.0	0.25	mg/L			06/16/17 22:03	1
Fluoride	0.96	B	0.50	0.060	mg/L			06/16/17 22:03	1
Sulfate	22		5.0	0.23	mg/L			06/16/17 22:03	1
Total Dissolved Solids (TDS)	280		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	700		14	3.9	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			06/16/17 07:52	1
Temperature	20.4	HF	1.0	1.0	Degrees C			06/16/17 07:52	1
Chloride	2.6	J B	3.0	0.25	mg/L			06/17/17 00:03	1
Fluoride	0.23	J B	0.50	0.060	mg/L			06/17/17 00:03	1
Sulfate	1300		100	4.6	mg/L			06/19/17 22:11	20
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	140		4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			06/16/17 07:47	1
Temperature	20.2	HF	1.0	1.0	Degrees C			06/16/17 07:47	1
Chloride	3.2	B	3.0	0.25	mg/L			06/17/17 00:22	1

General Chemistry (Continued)

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.31	J B	0.50	0.060	mg/L			06/17/17 00:22	1
Sulfate	1100		100	4.6	mg/L			06/19/17 23:01	20
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	61		4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			06/16/17 07:42	1
Temperature	20.1	HF	1.0	1.0	Degrees C			06/16/17 07:42	1
Chloride	3.1	B	3.0	0.25	mg/L			06/17/17 01:02	1
Fluoride	0.30	J B	0.50	0.060	mg/L			06/17/17 01:02	1
Sulfate	1100		100	4.6	mg/L			06/19/17 23:18	20
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	38		4.0	1.1	mg/L			05/26/17 15:54	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.5	HF	0.1	0.1	SU			06/16/17 08:12	1
Temperature	20.6	HF	1.0	1.0	Degrees C			06/16/17 08:12	1
Chloride	0.71	J B	3.0	0.25	mg/L			06/17/17 01:22	1
Fluoride	0.074	J B	0.50	0.060	mg/L			06/17/17 01:22	1
Sulfate	1.8	J	5.0	0.23	mg/L			06/17/17 01:22	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/26/17 10:36	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/26/17 15:54	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.374		0.111	0.116	1.00	0.0946	pCi/L	05/31/17 08:13	06/22/17 06:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/31/17 08:13*	*06/22/17 06:09*	*1*

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.276		0.0940	0.0972	1.00	0.0784	pCi/L	05/31/17 08:13	06/22/17 06:10	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	05/31/17 08:13	06/22/17 06:10	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.111	U	0.0799	0.0805	1.00	0.114	pCi/L	05/31/17 08:13	06/22/17 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110	05/31/17 08:13	06/22/17 06:10	1

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.897**		0.265	0.277	1.00	0.235	pCi/L	05/31/17 08:13	06/22/17 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		40 - 110	05/31/17 08:13	06/22/17 06:10	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.527**		0.130	0.138	1.00	0.0949	pCi/L	05/31/17 08:13	06/22/17 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110	05/31/17 08:13	06/22/17 06:10	1

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.320**		0.101	0.105	1.00	0.0839	pCi/L	05/31/17 08:13	06/22/17 06:10	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	05/31/17 08:13	06/22/17 06:10	1

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.242**		0.0952	0.0976	1.00	0.107	pCi/L	05/31/17 08:13	06/22/17 06:12	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	05/31/17 08:13	06/22/17 06:12	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0385	U	0.0529	0.0530	1.00	0.0892	pCi/L	05/31/17 08:13	06/22/17 06:12	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	05/31/17 08:13	06/22/17 06:12	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.257	U	0.228	0.229	1.00	0.366	pCi/L	05/31/17 08:34	06/13/17 14:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	05/31/17 08:34	06/13/17 14:35	1
Y Carrier	91.6		40 - 110	05/31/17 08:34	06/13/17 14:35	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.319	U	0.212	0.214	1.00	0.326	pCi/L	05/31/17 08:34	06/13/17 14:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	05/31/17 08:34	06/13/17 14:35	1
Y Carrier	91.6		40 - 110	05/31/17 08:34	06/13/17 14:35	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.000	U	0.203	0.203	1.00	0.365	pCi/L	05/31/17 08:34	06/13/17 14:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110	05/31/17 08:34	06/13/17 14:35	1
Y Carrier	90.5		40 - 110	05/31/17 08:34	06/13/17 14:35	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.833		0.520	0.526	1.00	0.790	pCi/L	05/31/17 08:34	06/13/17 14:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.2*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*
Y Carrier	*86.7*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.331		0.211	0.213	1.00	0.320	pCi/L	05/31/17 08:34	06/13/17 14:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*
Y Carrier	*87.9*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.321	U	0.215	0.217	1.00	0.331	pCi/L	05/31/17 08:34	06/13/17 14:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*
Y Carrier	*87.9*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:33*	*1*

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.245	U	0.214	0.215	1.00	0.342	pCi/L	05/31/17 08:34	06/13/17 14:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:35*	*1*
Y Carrier	*90.1*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:35*	*1*

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00948	U	0.177	0.177	1.00	0.318	pCi/L	05/31/17 08:34	06/13/17 14:32	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	05/31/17 08:34	06/13/17 14:32	1
Y Carrier	91.2		40 - 110	05/31/17 08:34	06/13/17 14:32	1

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

Client Sample ID: PNMW-1B
Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.631		0.254	0.257	5.00	0.366	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-2B
Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.596		0.232	0.235	5.00	0.326	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-13
Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.111	U	0.218	0.218	5.00	0.365	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-14
Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.73		0.583	0.594	5.00	0.790	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-15
Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.859		0.248	0.254	5.00	0.320	pCi/L		06/22/17 12:52	1

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

Client Sample ID: PNMW-16
Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.641**		0.238	0.241	5.00	0.331	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-16D
Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.488**		0.234	0.236	5.00	0.342	pCi/L		06/22/17 12:52	1

Client Sample ID: PNMW-14EB
Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0480	U	0.185	0.185	5.00	0.318	pCi/L		06/22/17 12:52	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-280697/1-A
Matrix: Water
Analysis Batch: 280964

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00840	J	0.20	0.0081	mg/L		05/27/17 14:00	05/30/17 13:21	1

Lab Sample ID: LCS 240-280697/2-A
Matrix: Water
Analysis Batch: 280964

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.07		mg/L		107	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-280697/1-A
Matrix: Water
Analysis Batch: 281602

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		05/27/17 14:00	06/03/17 00:34	1
Arsenic	ND		0.0050	0.00075	mg/L		05/27/17 14:00	06/03/17 00:34	1
Barium	ND		0.0050	0.0022	mg/L		05/27/17 14:00	06/03/17 00:34	1
Beryllium	ND		0.0010	0.00031	mg/L		05/27/17 14:00	06/03/17 00:34	1
Calcium	ND		1.0	0.58	mg/L		05/27/17 14:00	06/03/17 00:34	1
Cadmium	ND		0.0010	0.00021	mg/L		05/27/17 14:00	06/03/17 00:34	1
Cobalt	ND		0.0010	0.00019	mg/L		05/27/17 14:00	06/03/17 00:34	1
Chromium	ND		0.0020	0.00098	mg/L		05/27/17 14:00	06/03/17 00:34	1
Molybdenum	ND		0.010	0.0011	mg/L		05/27/17 14:00	06/03/17 00:34	1
Selenium	ND		0.0050	0.00089	mg/L		05/27/17 14:00	06/03/17 00:34	1
Thallium	ND		0.0010	0.00020	mg/L		05/27/17 14:00	06/03/17 00:34	1
Lithium	ND		0.0080	0.0017	mg/L		05/27/17 14:00	06/03/17 00:34	1

Lab Sample ID: MB 240-280697/1-A
Matrix: Water
Analysis Batch: 281775

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00045	mg/L		05/27/17 14:00	06/05/17 16:21	1

Lab Sample ID: LCS 240-280697/3-A
Matrix: Water
Analysis Batch: 281602

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0989		mg/L		99	80 - 120
Arsenic	1.00	1.00		mg/L		100	80 - 120
Barium	1.00	0.997		mg/L		100	80 - 120
Beryllium	1.00	1.13		mg/L		113	80 - 120
Calcium	10.0	8.88		mg/L		89	80 - 120
Cadmium	1.00	1.03		mg/L		103	80 - 120
Cobalt	1.00	1.06		mg/L		106	80 - 120
Chromium	1.00	1.01		mg/L		101	80 - 120

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

Lab Sample ID: LCS 240-280697/3-A
Matrix: Water
Analysis Batch: 281602

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	0.100	0.102		mg/L		102	80 - 120
Selenium	1.00	1.02		mg/L		102	80 - 120
Thallium	0.250	0.263		mg/L		105	80 - 120
Lithium	0.100	0.0842		mg/L		84	80 - 120

Lab Sample ID: LCS 240-280697/3-A
Matrix: Water
Analysis Batch: 281775

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 280697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	0.980		mg/L		98	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-375985/1-A
Matrix: Water
Analysis Batch: 376524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 375985

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/07/17 11:39	06/07/17 15:02	1

Lab Sample ID: LCS 280-375985/2-A
Matrix: Water
Analysis Batch: 376524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 375985

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00505		mg/L		101	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-377644/4
Matrix: Water
Analysis Batch: 377644

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: LCSD 280-377644/5
Matrix: Water
Analysis Batch: 377644

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
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101	0	5

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-377582/6
Matrix: Water
Analysis Batch: 377582

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.618	J	3.0	0.25	mg/L			06/16/17 10:32	1
Fluoride	0.0623	J	0.50	0.060	mg/L			06/16/17 10:32	1
Sulfate	ND		5.0	0.23	mg/L			06/16/17 10:32	1

Lab Sample ID: LCS 280-377582/4
Matrix: Water
Analysis Batch: 377582

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	105		mg/L		105	90 - 110
Fluoride	5.00	4.89		mg/L		98	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-377582/5
Matrix: Water
Analysis Batch: 377582

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	105		mg/L		105	90 - 110	0	10
Fluoride	5.00	4.92		mg/L		98	90 - 110	0	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-377582/3
Matrix: Water
Analysis Batch: 377582

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.48	J	mg/L		99	50 - 150
Fluoride	0.200	0.213	J	mg/L		107	50 - 150
Sulfate	2.50	2.53	J	mg/L		101	50 - 150

Lab Sample ID: 280-97537-2 MS
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11	B	25.0	35.9		mg/L		101	80 - 120
Fluoride	0.50	B	5.00	5.25		mg/L		95	80 - 120
Sulfate	21		25.0	46.6		mg/L		102	80 - 120

Lab Sample ID: 280-97537-2 MSD
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	11	B	25.0	36.4		mg/L		103	80 - 120	1	20
Fluoride	0.50	B	5.00	5.33		mg/L		97	80 - 120	2	20
Sulfate	21		25.0	47.1		mg/L		104	80 - 120	1	20

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

Lab Sample ID: 280-97537-4 MS
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	2.4	J B	25.0	26.3		mg/L		96	80 - 120		
Fluoride	0.96	B	5.00	5.88		mg/L		98	80 - 120		
Sulfate	22		25.0	47.7		mg/L		102	80 - 120		

Lab Sample ID: 280-97537-4 MSD
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.4	J B	25.0	26.5		mg/L		97	80 - 120	1	20
Fluoride	0.96	B	5.00	5.95		mg/L		100	80 - 120	1	20
Sulfate	22		25.0	47.9		mg/L		103	80 - 120	0	20

Lab Sample ID: 280-97537-2 DU
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	11	B		10.5		mg/L				1	15
Fluoride	0.50	B		0.502		mg/L				1	15
Sulfate	21			20.9		mg/L				1	15

Lab Sample ID: 280-97537-4 DU
Matrix: Water
Analysis Batch: 377582

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	2.4	J B		2.45	J	mg/L				2	15
Fluoride	0.96	B		0.951		mg/L				1	15
Sulfate	22			22.2		mg/L				0.5	15

Lab Sample ID: MB 280-377881/6
Matrix: Water
Analysis Batch: 377881

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	0.23	mg/L			06/19/17 16:04	1

Lab Sample ID: LCS 280-377881/4
Matrix: Water
Analysis Batch: 377881

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

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

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

Lab Sample ID: LCSD 280-377881/5
Matrix: Water
Analysis Batch: 377881

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate			100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-377881/3
Matrix: Water
Analysis Batch: 377881

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			2.50	2.51	J	mg/L		100	50 - 150		

Lab Sample ID: 280-97537-8 MS
Matrix: Water
Analysis Batch: 377881

Client Sample ID: PNMW-16D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	1100		500	1620		mg/L		101	80 - 120		

Lab Sample ID: 280-97537-8 MSD
Matrix: Water
Analysis Batch: 377881

Client Sample ID: PNMW-16D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	1100		500	1630		mg/L		103	80 - 120	1	20

Lab Sample ID: 280-97537-8 DU
Matrix: Water
Analysis Batch: 377881

Client Sample ID: PNMW-16D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	1100			1090		mg/L				3	15

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

Lab Sample ID: MB 280-375209/1
Matrix: Water
Analysis Batch: 375209

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/26/17 10:36	1

Lab Sample ID: LCS 280-375209/2
Matrix: Water
Analysis Batch: 375209

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids (TDS)			500	493		mg/L		99	86 - 110		

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

Lab Sample ID: LCSD 280-375209/3
Matrix: Water
Analysis Batch: 375209

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)			500	491		mg/L		98	86 - 110	0	20

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

Lab Sample ID: MB 280-375274/3
Matrix: Water
Analysis Batch: 375274

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/26/17 15:54	1

Lab Sample ID: LCS 280-375274/1
Matrix: Water
Analysis Batch: 375274

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	92.0		mg/L		92	86 - 114		

Lab Sample ID: LCSD 280-375274/2
Matrix: Water
Analysis Batch: 375274

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	92.4		mg/L		92	86 - 114	0	20

Lab Sample ID: 280-97537-8 DU
Matrix: Water
Analysis Batch: 375274

Client Sample ID: PNMW-16D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	38			38.8		mg/L				2	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-311211/1-A
Matrix: Water
Analysis Batch: 314645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311211

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007580	U	0.0357	0.0357	1.00	0.0840	pCi/L	05/31/17 08:13	06/22/17 06:08	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*05/31/17 08:13*	*06/22/17 06:08*	*1*

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

Lab Sample ID: LCS 160-311211/2-A
Matrix: Water
Analysis Batch: 314645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311211

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.751		1.02	1.00	0.0993	pCi/L	86	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Lab Sample ID: LCSD 160-311211/3-A
Matrix: Water
Analysis Batch: 314645

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311211

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.06		1.05	1.00	0.0832	pCi/L	89	68 - 137	0.15	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-311295/1-A
Matrix: Water
Analysis Batch: 313169

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311295

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2073	U	0.201	0.202	1.00	0.324	pCi/L	05/31/17 08:34	06/13/17 14:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:35*	*1*
Y Carrier	*86.7*		*40 - 110*	*05/31/17 08:34*	*06/13/17 14:35*	*1*

Lab Sample ID: LCS 160-311295/2-A
Matrix: Water
Analysis Batch: 313169

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311295

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.3	14.15		1.51	1.00	0.328	pCi/L	106	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*90.5*		*40 - 110*

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

TestAmerica Job ID: 280-97537-1

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

Lab Sample ID: LCSD 160-311295/3-A
Matrix: Water
Analysis Batch: 313169

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311295

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.3	13.05		1.42	1.00	0.427	pCi/L	98	56 - 140	0.38	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*
Y Carrier	*88.6*		*40 - 110*

Metals

Prep Batch: 280697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total Recoverable	Water	3005A	
280-97537-2	PNMW-2B	Total Recoverable	Water	3005A	
280-97537-3	PNMW-13	Total Recoverable	Water	3005A	
280-97537-4	PNMW-14	Total Recoverable	Water	3005A	
280-97537-5	PNMW-15	Total Recoverable	Water	3005A	
280-97537-6	PNMW-16	Total Recoverable	Water	3005A	
280-97537-8	PNMW-16D	Total Recoverable	Water	3005A	
280-97537-9	PNMW-14EB	Total Recoverable	Water	3005A	
MB 240-280697/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-280697/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-280697/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 280964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total Recoverable	Water	6010C	280697
280-97537-2	PNMW-2B	Total Recoverable	Water	6010C	280697
280-97537-3	PNMW-13	Total Recoverable	Water	6010C	280697
280-97537-4	PNMW-14	Total Recoverable	Water	6010C	280697
280-97537-5	PNMW-15	Total Recoverable	Water	6010C	280697
280-97537-6	PNMW-16	Total Recoverable	Water	6010C	280697
280-97537-8	PNMW-16D	Total Recoverable	Water	6010C	280697
280-97537-9	PNMW-14EB	Total Recoverable	Water	6010C	280697
MB 240-280697/1-A	Method Blank	Total Recoverable	Water	6010C	280697
LCS 240-280697/2-A	Lab Control Sample	Total Recoverable	Water	6010C	280697

Analysis Batch: 281602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total Recoverable	Water	6020A	280697
280-97537-2	PNMW-2B	Total Recoverable	Water	6020A	280697
280-97537-3	PNMW-13	Total Recoverable	Water	6020A	280697
280-97537-4	PNMW-14	Total Recoverable	Water	6020A	280697
280-97537-5	PNMW-15	Total Recoverable	Water	6020A	280697
280-97537-6	PNMW-16	Total Recoverable	Water	6020A	280697
280-97537-8	PNMW-16D	Total Recoverable	Water	6020A	280697
280-97537-9	PNMW-14EB	Total Recoverable	Water	6020A	280697
MB 240-280697/1-A	Method Blank	Total Recoverable	Water	6020A	280697
LCS 240-280697/3-A	Lab Control Sample	Total Recoverable	Water	6020A	280697

Analysis Batch: 281775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total Recoverable	Water	6020A	280697
280-97537-2	PNMW-2B	Total Recoverable	Water	6020A	280697
280-97537-3	PNMW-13	Total Recoverable	Water	6020A	280697
280-97537-4	PNMW-14	Total Recoverable	Water	6020A	280697
280-97537-5	PNMW-15	Total Recoverable	Water	6020A	280697
280-97537-6	PNMW-16	Total Recoverable	Water	6020A	280697
280-97537-8	PNMW-16D	Total Recoverable	Water	6020A	280697
280-97537-9	PNMW-14EB	Total Recoverable	Water	6020A	280697
MB 240-280697/1-A	Method Blank	Total Recoverable	Water	6020A	280697
LCS 240-280697/3-A	Lab Control Sample	Total Recoverable	Water	6020A	280697

Metals (Continued)

Prep Batch: 375985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	7470A	
280-97537-2	PNMW-2B	Total/NA	Water	7470A	
280-97537-3	PNMW-13	Total/NA	Water	7470A	
280-97537-4	PNMW-14	Total/NA	Water	7470A	
280-97537-5	PNMW-15	Total/NA	Water	7470A	
280-97537-6	PNMW-16	Total/NA	Water	7470A	
280-97537-8	PNMW-16D	Total/NA	Water	7470A	
280-97537-9	PNMW-14EB	Total/NA	Water	7470A	
MB 280-375985/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-375985/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 376524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	7470A	375985
280-97537-2	PNMW-2B	Total/NA	Water	7470A	375985
280-97537-3	PNMW-13	Total/NA	Water	7470A	375985
280-97537-4	PNMW-14	Total/NA	Water	7470A	375985
280-97537-5	PNMW-15	Total/NA	Water	7470A	375985
280-97537-6	PNMW-16	Total/NA	Water	7470A	375985
280-97537-8	PNMW-16D	Total/NA	Water	7470A	375985
280-97537-9	PNMW-14EB	Total/NA	Water	7470A	375985
MB 280-375985/1-A	Method Blank	Total/NA	Water	7470A	375985
LCS 280-375985/2-A	Lab Control Sample	Total/NA	Water	7470A	375985

General Chemistry

Analysis Batch: 375209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-97537-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-97537-3	PNMW-13	Total/NA	Water	SM 2540C	
280-97537-4	PNMW-14	Total/NA	Water	SM 2540C	
280-97537-5	PNMW-15	Total/NA	Water	SM 2540C	
280-97537-6	PNMW-16	Total/NA	Water	SM 2540C	
280-97537-8	PNMW-16D	Total/NA	Water	SM 2540C	
280-97537-9	PNMW-14EB	Total/NA	Water	SM 2540C	
MB 280-375209/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-375209/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-375209/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 375274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-97537-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-97537-3	PNMW-13	Total/NA	Water	SM 2540D	
280-97537-4	PNMW-14	Total/NA	Water	SM 2540D	
280-97537-5	PNMW-15	Total/NA	Water	SM 2540D	
280-97537-6	PNMW-16	Total/NA	Water	SM 2540D	
280-97537-8	PNMW-16D	Total/NA	Water	SM 2540D	
280-97537-9	PNMW-14EB	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 375274 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-375274/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-375274/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-375274/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-97537-8 DU	PNMW-16D	Total/NA	Water	SM 2540D	

Analysis Batch: 377582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	9056A	
280-97537-1	PNMW-1B	Total/NA	Water	9056A	
280-97537-2	PNMW-2B	Total/NA	Water	9056A	
280-97537-3	PNMW-13	Total/NA	Water	9056A	
280-97537-4	PNMW-14	Total/NA	Water	9056A	
280-97537-5	PNMW-15	Total/NA	Water	9056A	
280-97537-6	PNMW-16	Total/NA	Water	9056A	
280-97537-8	PNMW-16D	Total/NA	Water	9056A	
280-97537-9	PNMW-14EB	Total/NA	Water	9056A	
MB 280-377582/6	Method Blank	Total/NA	Water	9056A	
LCS 280-377582/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-377582/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-377582/3	Lab Control Sample	Total/NA	Water	9056A	
280-97537-2 MS	PNMW-2B	Total/NA	Water	9056A	
280-97537-2 MSD	PNMW-2B	Total/NA	Water	9056A	
280-97537-4 MS	PNMW-14	Total/NA	Water	9056A	
280-97537-4 MSD	PNMW-14	Total/NA	Water	9056A	
280-97537-2 DU	PNMW-2B	Total/NA	Water	9056A	
280-97537-4 DU	PNMW-14	Total/NA	Water	9056A	

Analysis Batch: 377644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	9040B	
280-97537-2	PNMW-2B	Total/NA	Water	9040B	
280-97537-3	PNMW-13	Total/NA	Water	9040B	
280-97537-4	PNMW-14	Total/NA	Water	9040B	
280-97537-5	PNMW-15	Total/NA	Water	9040B	
280-97537-6	PNMW-16	Total/NA	Water	9040B	
280-97537-8	PNMW-16D	Total/NA	Water	9040B	
280-97537-9	PNMW-14EB	Total/NA	Water	9040B	
LCS 280-377644/4	Lab Control Sample	Total/NA	Water	9040B	
LCSD 280-377644/5	Lab Control Sample Dup	Total/NA	Water	9040B	

Analysis Batch: 377881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-5	PNMW-15	Total/NA	Water	9056A	
280-97537-6	PNMW-16	Total/NA	Water	9056A	
280-97537-8	PNMW-16D	Total/NA	Water	9056A	
MB 280-377881/6	Method Blank	Total/NA	Water	9056A	
LCS 280-377881/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-377881/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-377881/3	Lab Control Sample	Total/NA	Water	9056A	
280-97537-8 MS	PNMW-16D	Total/NA	Water	9056A	
280-97537-8 MSD	PNMW-16D	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 377881 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-8 DU	PNMW-16D	Total/NA	Water	9056A	

Rad

Prep Batch: 311211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-97537-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-97537-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-97537-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-97537-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-97537-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-97537-8	PNMW-16D	Total/NA	Water	PrecSep-21	
280-97537-9	PNMW-14EB	Total/NA	Water	PrecSep-21	
MB 160-311211/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-311211/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-311211/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 311295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-97537-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-97537-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-97537-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-97537-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-97537-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-97537-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-97537-8	PNMW-16D	Total/NA	Water	PrecSep_0	
280-97537-9	PNMW-14EB	Total/NA	Water	PrecSep_0	
MB 160-311295/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-311295/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-311295/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-1B

Date Collected: 05/23/17 19:05
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 13:29	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 01:50	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:29	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:37	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:17	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/16/17 20:04	TLP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	377582	06/17/17 12:59	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.59 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:09	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.59 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313169	06/13/17 14:35	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 05/24/17 08:50
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 13:34	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 01:54	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:33	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:40	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:32	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/16/17 20:23	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.03 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.03 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313169	06/13/17 14:35	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Client Sample ID: PNMW-13

Date Collected: 05/24/17 14:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:27	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 01:58	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:38	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:42	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:12	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/16/17 21:43	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.96 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.96 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313169	06/13/17 14:35	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Client Sample ID: PNMW-14

Date Collected: 05/24/17 14:00
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:32	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 02:02	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:42	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:44	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:37	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/16/17 22:03	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	70 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.51 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			499.51 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313170	06/13/17 14:33	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-15

Date Collected: 05/24/17 12:30
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-5

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	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:36	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 02:15	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:46	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:46	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:52	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/17/17 00:03	TLP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	377881	06/19/17 22:11	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.30 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.30 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313170	06/13/17 14:33	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Client Sample ID: PNMW-16

Date Collected: 05/23/17 17:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-6

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	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:41	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 02:19	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 16:50	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:48	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:47	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/17/17 00:22	TLP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	377881	06/19/17 23:01	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.29 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314645	06/22/17 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.29 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313170	06/13/17 14:33	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-97537-1

Client Sample ID: PNMW-16D

Date Collected: 05/23/17 17:48
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:50	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 02:28	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 17:07	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 15:57	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 07:42	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/17/17 01:02	TLP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	377881	06/19/17 23:18	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.37 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314643	06/22/17 06:12	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.37 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313169	06/13/17 14:35	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Client Sample ID: PNMW-14EB

Date Collected: 05/23/17 15:40
Date Received: 05/24/17 17:30

Lab Sample ID: 280-97537-9

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	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			280964	05/30/17 12:54	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281602	06/03/17 02:32	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	280697	05/27/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			281775	06/05/17 17:11	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	375985	06/07/17 11:39	CDH	TAL DEN
Total/NA	Analysis	7470A		1			376524	06/07/17 16:00	CDH	TAL DEN
Total/NA	Analysis	9040B		1			377644	06/16/17 08:12	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	377582	06/17/17 01:22	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	375209	05/26/17 10:36	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	375274	05/26/17 15:54	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.93 mL	1.0 g	311211	05/31/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			314643	06/22/17 06:12	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.93 mL	1.0 g	311295	05/31/17 08:34	LDE	TAL SL
Total/NA	Analysis	9320		1			313170	06/13/17 14:32	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			314773	06/22/17 12:52	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-97537-1

Laboratory References:

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

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

TAL SL = 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

TestAmerica Job ID: 280-97537-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-97537-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: NJH	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: ~~Anna Lundin~~ Matt Rohr	Phone: (507) 250-1774	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:	Analysis Requested
City: Englewood	TAT Requested (days): Standard	
State, Zip: CO, 80112		
Phone: ~~720-639-2380(Tel)~~	PO #: DEN-001	
Email: ~~anna.lundin@hdrinc.com~~ matthew.rohr@hdrinc.com	WO #:	
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378	
Site: Colorado	SSOW#:	

280-97537 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	5/23	1905	G	Water		N	X	X	X	X	X	7	
PNMW-2B	5/24	0850	G	Water		N	X	X	X	X	X	7	
PNMW-13	5/24	1430	G	Water		N	X	X	X	X	X	7	
PNMW-14	5/24	1400	G	Water		N	X	X	X	X	X	7	
PNMW-15	5/24	1230	G	Water		N	X	X	X	X	X	7	
PNMW-16	5/23	1740	G	Water		N	X	X	X	X	X	7	
PNMW-17	5/24	1325	G	Water		N	X	X	X	X	X	7	
~~Field Duplicate~~ PNMW-16D	5/23	1748	G	Water		N	X	X	X	X	X	7	
~~Equipment Blank~~ PNMW-14EB	5/23	1540	G	Water		N	X	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
	5/24/17 1730	HDR		5-24-17 1730	TMI
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: 0.9°, 4.7°, 3.0°, 1.8°, IR#7, -0.0, 5/24/17 GP

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-400057.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-97537-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 6/20/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-97537-1)	5/23/17	19:05 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-97537-2)	5/24/17	08:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-97537-3)	5/24/17	14:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-97537-4)	5/24/17	14:00 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-97537-5)	5/24/17	12:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-97537-6)	5/23/17	17:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-97537-7)	5/24/17	13:25 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16D (280-97537-8)	5/23/17	17:48 Mountain		Water			X	X	1	Use Collision Cell
PNMW-14EB (280-97537-9)	5/23/17	15:40 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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]	5/25/17 1525	TAL			
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-400058.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-97537-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/23/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-97537-1)	5/23/17	19:05 Mountain		Water			X	X	X	2	
PNMW-2B (280-97537-2)	5/24/17	08:50 Mountain		Water			X	X	X	2	
PNMW-13 (280-97537-3)	5/24/17	14:30 Mountain		Water			X	X	X	2	
PNMW-14 (280-97537-4)	5/24/17	14:00 Mountain		Water			X	X	X	2	
PNMW-15 (280-97537-5)	5/24/17	12:30 Mountain		Water			X	X	X	2	
PNMW-16 (280-97537-6)	5/23/17	17:40 Mountain		Water			X	X	X	2	
PNMW-17 (280-97537-7)	5/24/17	13:25 Mountain		Water			X	X	X	2	
PNMW-16D (280-97537-8)	5/23/17	17:48 Mountain		Water			X	X	X	2	
PNMW-14EB (280-97537-9)	5/23/17	15:40 Mountain		Water			X	X	X	2	

Ref:
Dep:
Date: 25May17
Wgt: 10.45 LBS
DV:
Sys: STANDARD OVERNIGHT
TRCK: 7367 5475 0827
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
TOTAL: 0.00

Ref:
Dep:
Date: 25May17
Wgt: 55.55 LBS
DV:
Sys: STANDARD OVERNIGHT
TRCK: 7367 5475 0838
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
TOTAL: 0.00

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
Rolinda Lane	5/25/17 1500	TAD			
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:

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

Chain of Custody Record

280-97537 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie	COC No: 280-400058.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Page: Page 1 of 1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/23/2017		Job #: 280-97537-1
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 CCR - Pawnee Station	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-97537-1)	5/23/17	19:05 Mountain		Water			X	X	X	2	
PNMW-2B (280-97537-2)	5/24/17	08:50 Mountain		Water			X	X	X	2	
PNMW-13 (280-97537-3)	5/24/17	14:30 Mountain		Water			X	X	X	2	
PNMW-14 (280-97537-4)	5/24/17	14:00 Mountain		Water			X	X	X	2	
PNMW-15 (280-97537-5)	5/24/17	12:30 Mountain		Water			X	X	X	2	
PNMW-16 (280-97537-6)	5/23/17	17:40 Mountain		Water			X	X	X	2	
PNMW-17 (280-97537-7)	5/24/17	13:25 Mountain		Water			X	X	X	2	
PNMW-16D (280-97537-8)	5/23/17	17:48 Mountain		Water			X	X	X	2	
PNMW-14EB (280-97537-9)	5/23/17	15:40 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: Rothmeyer	Date/Time: 5/25/17 1500	Company TAD	Received by:	Date/Time: 5/26/17 0840	Company		
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-400057.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-97537-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 6/20/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	365	500	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
PNMW-1B (280-97537-1)	5/23/17	19:05 Mountain		Water			X	X			1	, Use Collision Cell
PNMW-2B (280-97537-2)	5/24/17	08:50 Mountain		Water			X	X			1	Use Collision Cell
PNMW-13 (280-97537-3)	5/24/17	14:30 Mountain		Water			X	X			1	, Use Collision Cell
PNMW-14 (280-97537-4)	5/24/17	14:00 Mountain		Water			X	X			1	Use Collision Cell
PNMW-15 (280-97537-5)	5/24/17	12:30 Mountain		Water			X	X			1	, Use Collision Cell
PNMW-16 (280-97537-6)	5/23/17	17:40 Mountain		Water			X	X			1	Use Collision Cell
PNMW-17 (280-97537-7)	5/24/17	13:25 Mountain		Water			X	X			1	, Use Collision Cell
PNMW-16D (280-97537-8)	5/23/17	17:48 Mountain		Water			X	X			1	Use Collision Cell
PNMW-14EB (280-97537-9)	5/23/17	15:40 Mountain		Water			X	X			1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/25/17 1525	TAD	[signature]	5/26/17 0930	TA Co
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 280-97537**
Canton Facility

Client TA Denver Site Name _____ Cooler unpacked by: Jerry Burns

Cooler Received on 5/27/17 Opened on 5/27/17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-8 (CF **-0.4** °C) Observed Cooler Temp. 16.3 °C Corrected Cooler Temp. 16.3 °C
   IR GUN #36 (CF **+0**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were custody seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
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 11-15 have been checked at the originating laboratory.		
11. Were sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# **HC697954**
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No	NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

Ref: SOP NC-SC-0005, Sample Receiving
\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-052317 Cooler Receipt Form.doc djl

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-400057.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-97537-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 6/20/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-97537-1)	5/23/17	19:05 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-97537-2)	5/24/17	08:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-97537-3)	5/24/17	14:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-97537-4)	5/24/17	14:00 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-97537-5)	5/24/17	12:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-97537-6)	5/23/17	17:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-97537-7)	5/24/17	13:25 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16D (280-97537-8)	5/23/17	17:48 Mountain		Water			X	X	1	Use Collision Cell
PNMW-14EB (280-97537-9)	5/23/17	15:40 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/25/17 1525	TAL	[signature]	5/26/17 0930	TA Co
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 280-97537**
Canton Facility

Client TA Denver Site Name _____ Cooler unpacked by: Gerry Burns

Cooler Received on 5/26/17 Opened on 5/26/17

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

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

TestAmerica Cooler # _____ 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-8 (CF **-0.4** °C) Observed Cooler Temp. 16.3 °C Corrected Cooler Temp. 16.3 °C

IR GUN #36 (CF **+0**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were custody seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
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 11-15 have been checked at the originating laboratory.		
11. Were sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# **HC697954**
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-97537-1

Login Number: 97537
List Number: 1
Creator: Parrott, Gregg S

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-97537-1

Login Number: 97537
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 05/26/17 11:40 AM

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.	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	2.0,18.0
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.	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

TestAmerica Job ID: 280-97537-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-97537-1	PNMW-1B	101
280-97537-2	PNMW-2B	102
280-97537-3	PNMW-13	93.2
280-97537-4	PNMW-14	83.2
280-97537-5	PNMW-15	98.2
280-97537-6	PNMW-16	101
280-97537-8	PNMW-16D	101
280-97537-9	PNMW-14EB	100
LCS 160-311211/2-A	Lab Control Sample	101
LCSD 160-311211/3-A	Lab Control Sample Dup	102
MB 160-311211/1-A	Method Blank	99.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-97537-1	PNMW-1B	101	91.6
280-97537-2	PNMW-2B	102	91.6
280-97537-3	PNMW-13	93.2	90.5
280-97537-4	PNMW-14	83.2	86.7
280-97537-5	PNMW-15	98.2	87.9
280-97537-6	PNMW-16	101	87.9
280-97537-8	PNMW-16D	101	90.1
280-97537-9	PNMW-14EB	100	91.2
LCS 160-311295/2-A	Lab Control Sample	101	90.5
LCSD 160-311295/3-A	Lab Control Sample Dup	102	88.6
MB 160-311295/1-A	Method Blank	99.1	86.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT



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

TestAmerica Job ID: 280-98387-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
7/18/2017 4:10:29 PM

Stephanie Rothmeyer, Project Manager I
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LINKS

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-98387-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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: 280-98387-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-98387-1

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.

This report may include data with reporting limits (RLs) less than TestAmerica's standard reporting limit. These data and reporting limits are being used specifically to meet the needs of this project. Note that, data are not customarily reported to these levels without qualifiers, because they are inherently less reliable and potentially less defensible than the latest industry standards require.

RECEIPT

The samples were received on 6/16/2017 at 9:51 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

TOTAL RECOVERABLE METALS

Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/21/2017 and analyzed on 06/22/2017.

Boron was detected in method blank MB 240-284147/1-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 RECOVERABLE METALS (ICPMS)

Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 06/21/2017 and analyzed on 06/28/2017.

Calcium failed the recovery criteria low for the MS of sample 240-81196-1 in batch 240-285130. 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/20/2017.

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

TOTAL DISSOLVED SOLIDS

Job ID: 280-98387-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/21/2017.

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

TOTAL SUSPENDED SOLIDS
Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 06/21/2017.

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

CORROSIVITY (PH)
Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 07/06/2017.

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

ANIONS (28 DAYS)
Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 07/05/2017.

Sulfate was detected in method blank MB 280-379790/6 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.

Samples PNMW-15 (280-98387-1)[5X], PNMW-16 (280-98387-2)[10X] and PNMW-16D (280-98387-3)[10X] 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-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 06/23/2017 and analyzed on 07/17/2017.

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-314979.

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

RADIUM-228
Samples PNMW-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 06/23/2017 and analyzed on 07/06/2017.

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-314992.

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-15 (280-98387-1), PNMW-16 (280-98387-2) and PNMW-16D (280-98387-3) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 07/18/2017.

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

TestAmerica Job ID: 280-98387-1

Client Sample ID: PNMW-15 — Lab Sample ID: 280-98387-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.43	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0020	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.093		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	230		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0039		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.011		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0024	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0032		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0037	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.17		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	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	3.4		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.26	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	940	B	25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1800		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: PNMW-16 — Lab Sample ID: 280-98387-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.030		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0022		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0017	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0018	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00064	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.17		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.5	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100	B	50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	76		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

TestAmerica Job ID: 280-98387-1

Client Sample ID: PNMW-16D

Lab Sample ID: 280-98387-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.42	B	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.00061	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.047		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00037	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0025		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0054		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.031		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0019		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Lithium	0.17		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	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	2.6	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100	B	50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	71		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

TestAmerica Job ID: 280-98387-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-98387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-98387-1	PNMW-15	Water	06/15/17 16:25	06/16/17 09:51
280-98387-2	PNMW-16	Water	06/15/17 14:35	06/16/17 09:51
280-98387-3	PNMW-16D	Water	06/15/17 14:35	06/16/17 09:51

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

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.43**	**B**	0.20	0.0081	mg/L		06/21/17 14:00	06/22/17 16:02	1

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.41**	**B**	0.20	0.0081	mg/L		06/21/17 14:00	06/22/17 16:06	1

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.42**	**B**	0.20	0.0081	mg/L		06/21/17 14:00	06/22/17 16:10	1

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

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/21/17 14:00	06/28/17 05:03	1
Arsenic	**0.0020**	**J**	0.0050	0.00075	mg/L		06/21/17 14:00	06/28/17 05:03	1
Barium	**0.093**		0.0050	0.0022	mg/L		06/21/17 14:00	06/28/17 05:03	1
Beryllium	ND		0.0010	0.00031	mg/L		06/21/17 14:00	06/28/17 05:03	1
Calcium	**230**		1.0	0.58	mg/L		06/21/17 14:00	06/28/17 05:03	1
Cadmium	ND		0.0010	0.00021	mg/L		06/21/17 14:00	06/28/17 05:03	1
Cobalt	**0.0039**		0.0010	0.00019	mg/L		06/21/17 14:00	06/28/17 05:03	1
Chromium	**0.011**		0.0020	0.00098	mg/L		06/21/17 14:00	06/28/17 05:03	1
Molybdenum	**0.0024**	**J**	0.010	0.0011	mg/L		06/21/17 14:00	06/28/17 05:03	1
Lead	**0.0032**		0.0010	0.00045	mg/L		06/21/17 14:00	06/28/17 05:03	1
Selenium	**0.0037**	**J**	0.0050	0.00089	mg/L		06/21/17 14:00	06/28/17 05:03	1
Thallium	ND		0.0010	0.00020	mg/L		06/21/17 14:00	06/28/17 05:03	1
Lithium	**0.17**		0.0080	0.0017	mg/L		06/21/17 14:00	06/28/17 19:37	1

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/21/17 14:00	06/28/17 05:07	1
Arsenic	ND		0.0050	0.00075	mg/L		06/21/17 14:00	06/28/17 05:07	1
Barium	**0.030**		0.0050	0.0022	mg/L		06/21/17 14:00	06/28/17 05:07	1
Beryllium	ND		0.0010	0.00031	mg/L		06/21/17 14:00	06/28/17 05:07	1
Calcium	**240**		1.0	0.58	mg/L		06/21/17 14:00	06/28/17 05:07	1
Cadmium	ND		0.0010	0.00021	mg/L		06/21/17 14:00	06/28/17 05:07	1
Cobalt	**0.0022**		0.0010	0.00019	mg/L		06/21/17 14:00	06/28/17 05:07	1
Chromium	**0.0017**	**J**	0.0020	0.00098	mg/L		06/21/17 14:00	06/28/17 05:07	1
Molybdenum	**0.0018**	**J**	0.010	0.0011	mg/L		06/21/17 14:00	06/28/17 05:07	1
Lead	**0.00064**	**J**	0.0010	0.00045	mg/L		06/21/17 14:00	06/28/17 05:07	1
Selenium	ND		0.0050	0.00089	mg/L		06/21/17 14:00	06/28/17 05:07	1
Thallium	ND		0.0010	0.00020	mg/L		06/21/17 14:00	06/28/17 05:07	1

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

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.17**		0.0080	0.0017	mg/L		06/21/17 14:00	06/28/17 19:42	1

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00061**	**J**	0.0020	0.00057	mg/L		06/21/17 14:00	06/28/17 05:20	1
Arsenic	**0.0012**	**J**	0.0050	0.00075	mg/L		06/21/17 14:00	06/28/17 05:20	1
Barium	**0.047**		0.0050	0.0022	mg/L		06/21/17 14:00	06/28/17 05:20	1
Beryllium	**0.00037**	**J**	0.0010	0.00031	mg/L		06/21/17 14:00	06/28/17 05:20	1
Calcium	**240**		1.0	0.58	mg/L		06/21/17 14:00	06/28/17 05:20	1
Cadmium	ND		0.0010	0.00021	mg/L		06/21/17 14:00	06/28/17 05:20	1
Cobalt	**0.0025**		0.0010	0.00019	mg/L		06/21/17 14:00	06/28/17 05:20	1
Chromium	**0.0054**		0.0020	0.00098	mg/L		06/21/17 14:00	06/28/17 05:20	1
Molybdenum	**0.031**		0.010	0.0011	mg/L		06/21/17 14:00	06/28/17 05:20	1
Lead	**0.0019**		0.0010	0.00045	mg/L		06/21/17 14:00	06/28/17 05:20	1
Selenium	ND		0.0050	0.00089	mg/L		06/21/17 14:00	06/28/17 05:20	1
Thallium	ND		0.0010	0.00020	mg/L		06/21/17 14:00	06/28/17 05:20	1
Lithium	**0.17**		0.0080	0.0017	mg/L		06/21/17 14:00	06/28/17 19:46	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:52	1

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:55	1

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 18:01	1

General Chemistry

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.9**	**HF**	0.1	0.1	SU			07/06/17 11:21	1
Temperature	**22.7**	**HF**	1.0	1.0	Degrees C			07/06/17 11:21	1
Chloride	**3.4**		3.0	0.25	mg/L			07/05/17 17:05	1
Fluoride	**0.26**	**J**	0.50	0.060	mg/L			07/05/17 17:05	1
Sulfate	**940**	**B**	25	1.2	mg/L			07/05/17 17:22	5

General Chemistry (Continued)

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	1800		10	4.7	mg/L			06/21/17 10:17	1
Total Suspended Solids	66		4.0	1.1	mg/L			06/21/17 17:33	1

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			07/06/17 11:16	1
Temperature	22.8	HF	1.0	1.0	Degrees C			07/06/17 11:16	1
Chloride	2.5	J	3.0	0.25	mg/L			07/05/17 17:39	1
Fluoride	0.24	J	0.50	0.060	mg/L			07/05/17 17:39	1
Sulfate	1100	B	50	2.3	mg/L			07/05/17 19:09	10
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			06/21/17 10:17	1
Total Suspended Solids	76		4.0	1.1	mg/L			06/21/17 17:33	1

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			07/06/17 11:11	1
Temperature	22.9	HF	1.0	1.0	Degrees C			07/06/17 11:11	1
Chloride	2.6	J	3.0	0.25	mg/L			07/05/17 18:13	1
Fluoride	0.24	J	0.50	0.060	mg/L			07/05/17 18:13	1
Sulfate	1100	B	50	2.3	mg/L			07/05/17 19:26	10
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L			06/21/17 10:17	1
Total Suspended Solids	71		4.0	1.1	mg/L			06/21/17 17:33	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.219		0.0895	0.0916	1.00	0.0867	pCi/L	06/23/17 08:13	07/17/17 08:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*06/23/17 08:13*	*07/17/17 08:50*	*1*

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.197		0.0955	0.0971	1.00	0.111	pCi/L	06/23/17 08:13	07/17/17 08:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.1*		*40 - 110*	*06/23/17 08:13*	*07/17/17 08:50*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.288		0.110	0.113	1.00	0.109	pCi/L	06/23/17 08:13	07/17/17 08:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.8*		*40 - 110*	*06/23/17 08:13*	*07/17/17 08:50*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.644		0.227	0.235	1.00	0.299	pCi/L	06/23/17 08:57	07/06/17 11:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*
Y Carrier	*87.1*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.412		0.251	0.254	1.00	0.383	pCi/L	06/23/17 08:57	07/06/17 11:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.1*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*
Y Carrier	*87.1*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.376	U	0.292	0.294	1.00	0.462	pCi/L	06/23/17 08:57	07/06/17 11:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.8*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*
Y Carrier	*80.4*		*40 - 110*	*06/23/17 08:57*	*07/06/17 11:01*	*1*

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

Client Sample ID: PNMW-15
Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.863		0.244	0.252	5.00	0.299	pCi/L		07/18/17 15:26	1

Client Sample ID: PNMW-16
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.609		0.269	0.272	5.00	0.383	pCi/L		07/18/17 15:26	1

Client Sample ID: PNMW-16D
Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.664		0.312	0.315	5.00	0.462	pCi/L		07/18/17 15:26	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-284147/1-A
Matrix: Water
Analysis Batch: 284340

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00846	J	0.20	0.0081	mg/L		06/21/17 14:00	06/22/17 09:53	1

Lab Sample ID: LCS 240-284147/2-A
Matrix: Water
Analysis Batch: 284340

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.02		mg/L		102	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-284147/1-A
Matrix: Water
Analysis Batch: 285130

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/21/17 14:00	06/28/17 04:00	1
Arsenic	ND		0.0050	0.00075	mg/L		06/21/17 14:00	06/28/17 04:00	1
Barium	ND		0.0050	0.0022	mg/L		06/21/17 14:00	06/28/17 04:00	1
Beryllium	ND		0.0010	0.00031	mg/L		06/21/17 14:00	06/28/17 04:00	1
Calcium	ND		1.0	0.58	mg/L		06/21/17 14:00	06/28/17 04:00	1
Cadmium	ND		0.0010	0.00021	mg/L		06/21/17 14:00	06/28/17 04:00	1
Cobalt	ND		0.0010	0.00019	mg/L		06/21/17 14:00	06/28/17 04:00	1
Chromium	ND		0.0020	0.00098	mg/L		06/21/17 14:00	06/28/17 04:00	1
Molybdenum	ND		0.010	0.0011	mg/L		06/21/17 14:00	06/28/17 04:00	1
Lead	ND		0.0010	0.00045	mg/L		06/21/17 14:00	06/28/17 04:00	1
Selenium	ND		0.0050	0.00089	mg/L		06/21/17 14:00	06/28/17 04:00	1
Thallium	ND		0.0010	0.00020	mg/L		06/21/17 14:00	06/28/17 04:00	1

Lab Sample ID: MB 240-284147/1-A
Matrix: Water
Analysis Batch: 285291

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0080	0.0017	mg/L		06/21/17 14:00	06/28/17 18:43	1

Lab Sample ID: LCS 240-284147/3-A
Matrix: Water
Analysis Batch: 285130

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0988		mg/L		99	80 - 120
Arsenic	1.00	0.966		mg/L		97	80 - 120
Barium	1.00	1.04		mg/L		104	80 - 120
Beryllium	1.00	1.11		mg/L		111	80 - 120
Calcium	10.0	9.49		mg/L		95	80 - 120
Cadmium	1.00	1.04		mg/L		104	80 - 120
Cobalt	1.00	1.04		mg/L		104	80 - 120
Chromium	1.00	1.00		mg/L		100	80 - 120

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

Lab Sample ID: LCS 240-284147/3-A
Matrix: Water
Analysis Batch: 285130

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	0.100	0.0972		mg/L		97	80 - 120
Lead	1.00	1.05		mg/L		105	80 - 120
Selenium	1.00	1.01		mg/L		101	80 - 120
Thallium	0.250	0.255		mg/L		102	80 - 120

Lab Sample ID: LCS 240-284147/3-A
Matrix: Water
Analysis Batch: 285291

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 284147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.100	0.103		mg/L		103	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-378002/1-A
Matrix: Water
Analysis Batch: 378119

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:19	1

Lab Sample ID: LCS 280-378002/2-A
Matrix: Water
Analysis Batch: 378119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00498		mg/L		100	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-380049/29
Matrix: Water
Analysis Batch: 380049

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 280-380049/4
Matrix: Water
Analysis Batch: 380049

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 280-379790/6
Matrix: Water
Analysis Batch: 379790

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	0.25	mg/L			07/05/17 10:14	1
Fluoride	ND		0.50	0.060	mg/L			07/05/17 10:14	1
Sulfate	0.571	J	5.0	0.23	mg/L			07/05/17 10:14	1

Lab Sample ID: LCS 280-379790/4
Matrix: Water
Analysis Batch: 379790

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	104		mg/L		104	90 - 110
Fluoride	5.00	5.29		mg/L		106	90 - 110
Sulfate	100	104		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-379790/5
Matrix: Water
Analysis Batch: 379790

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	103		mg/L		103	90 - 110	0	10
Fluoride	5.00	5.28		mg/L		106	90 - 110	0	10
Sulfate	100	105		mg/L		105	90 - 110	0	10

Lab Sample ID: MRL 280-379790/3
Matrix: Water
Analysis Batch: 379790

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.63	J	mg/L		105	50 - 150
Fluoride	0.200	0.182	J	mg/L		91	50 - 150
Sulfate	2.50	2.26	J	mg/L		90	50 - 150

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

Lab Sample ID: MB 280-378173/1
Matrix: Water
Analysis Batch: 378173

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			06/21/17 10:17	1

Lab Sample ID: LCS 280-378173/2
Matrix: Water
Analysis Batch: 378173

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	486		mg/L		97	86 - 110

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

Lab Sample ID: MB 280-378252/2
Matrix: Water
Analysis Batch: 378252

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/21/17 17:33	1

Lab Sample ID: LCS 280-378252/1
Matrix: Water
Analysis Batch: 378252

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	98.4		mg/L		98	86 - 114		

Lab Sample ID: 280-98387-3 DU
Matrix: Water
Analysis Batch: 378252

Client Sample ID: PNMW-16D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	71			72.4		mg/L				2	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-314979/1-A
Matrix: Water
Analysis Batch: 317600

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314979

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01474	U	0.0462	0.0462	1.00	0.0887	pCi/L	06/23/17 08:13	07/17/17 08:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.2*		*40 - 110*	*06/23/17 08:13*	*07/17/17 08:46*	*1*

Lab Sample ID: LCS 160-314979/2-A
Matrix: Water
Analysis Batch: 317600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314979

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.910		1.03	1.00	0.0955	pCi/L	87	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.3*		*40 - 110*

Lab Sample ID: LCSD 160-314979/3-A
Matrix: Water
Analysis Batch: 317600

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314979

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	9.140		0.946	1.00	0.0696	pCi/L	80	68 - 137	0.39	1

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

Lab Sample ID: LCSD 160-314979/3-A
Matrix: Water
Analysis Batch: 317600

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314979

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-314992/1-A
Matrix: Water
Analysis Batch: 316471

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314992

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.02613	U	0.185	0.185	1.00	0.330	pCi/L	06/23/17 08:57	07/06/17 10:57	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110	06/23/17 08:57	07/06/17 10:57	1
Y Carrier	83.7		40 - 110	06/23/17 08:57	07/06/17 10:57	1

Lab Sample ID: LCS 160-314992/2-A
Matrix: Water
Analysis Batch: 316471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314992

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.2	16.15		1.70	1.00	0.314	pCi/L	122	56 - 140		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.3		40 - 110
Y Carrier	86.0		40 - 110

Lab Sample ID: LCSD 160-314992/3-A
Matrix: Water
Analysis Batch: 316471

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314992

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.2	14.84		1.56	1.00	0.298	pCi/L	112	56 - 140	0.40	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	84.9		40 - 110

Metals

Prep Batch: 284147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total Recoverable	Water	3005A	
280-98387-2	PNMW-16	Total Recoverable	Water	3005A	
280-98387-3	PNMW-16D	Total Recoverable	Water	3005A	
MB 240-284147/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-284147/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-284147/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 284340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total Recoverable	Water	6010C	284147
280-98387-2	PNMW-16	Total Recoverable	Water	6010C	284147
280-98387-3	PNMW-16D	Total Recoverable	Water	6010C	284147
MB 240-284147/1-A	Method Blank	Total Recoverable	Water	6010C	284147
LCS 240-284147/2-A	Lab Control Sample	Total Recoverable	Water	6010C	284147

Analysis Batch: 285130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total Recoverable	Water	6020A	284147
280-98387-2	PNMW-16	Total Recoverable	Water	6020A	284147
280-98387-3	PNMW-16D	Total Recoverable	Water	6020A	284147
MB 240-284147/1-A	Method Blank	Total Recoverable	Water	6020A	284147
LCS 240-284147/3-A	Lab Control Sample	Total Recoverable	Water	6020A	284147

Analysis Batch: 285291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total Recoverable	Water	6020A	284147
280-98387-2	PNMW-16	Total Recoverable	Water	6020A	284147
280-98387-3	PNMW-16D	Total Recoverable	Water	6020A	284147
MB 240-284147/1-A	Method Blank	Total Recoverable	Water	6020A	284147
LCS 240-284147/3-A	Lab Control Sample	Total Recoverable	Water	6020A	284147

Prep Batch: 378002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	7470A	
280-98387-2	PNMW-16	Total/NA	Water	7470A	
280-98387-3	PNMW-16D	Total/NA	Water	7470A	
MB 280-378002/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-378002/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 378119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	7470A	378002
280-98387-2	PNMW-16	Total/NA	Water	7470A	378002
280-98387-3	PNMW-16D	Total/NA	Water	7470A	378002
MB 280-378002/1-A	Method Blank	Total/NA	Water	7470A	378002
LCS 280-378002/2-A	Lab Control Sample	Total/NA	Water	7470A	378002

General Chemistry

Analysis Batch: 378173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	SM 2540C	
280-98387-2	PNMW-16	Total/NA	Water	SM 2540C	
280-98387-3	PNMW-16D	Total/NA	Water	SM 2540C	
MB 280-378173/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-378173/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 378252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	SM 2540D	
280-98387-2	PNMW-16	Total/NA	Water	SM 2540D	
280-98387-3	PNMW-16D	Total/NA	Water	SM 2540D	
MB 280-378252/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-378252/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-98387-3 DU	PNMW-16D	Total/NA	Water	SM 2540D	

Analysis Batch: 379790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	9056A	
280-98387-1	PNMW-15	Total/NA	Water	9056A	
280-98387-2	PNMW-16	Total/NA	Water	9056A	
280-98387-2	PNMW-16	Total/NA	Water	9056A	
280-98387-3	PNMW-16D	Total/NA	Water	9056A	
280-98387-3	PNMW-16D	Total/NA	Water	9056A	
MB 280-379790/6	Method Blank	Total/NA	Water	9056A	
LCS 280-379790/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-379790/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-379790/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 380049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	9040B	
280-98387-2	PNMW-16	Total/NA	Water	9040B	
280-98387-3	PNMW-16D	Total/NA	Water	9040B	
LCS 280-380049/29	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-380049/4	Lab Control Sample	Total/NA	Water	9040B	

Rad

Prep Batch: 314979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	PrecSep-21	
280-98387-2	PNMW-16	Total/NA	Water	PrecSep-21	
280-98387-3	PNMW-16D	Total/NA	Water	PrecSep-21	
MB 160-314979/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-314979/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-314979/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 314992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-1	PNMW-15	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 314992 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98387-2	PNMW-16	Total/NA	Water	PrecSep_0	
280-98387-3	PNMW-16D	Total/NA	Water	PrecSep_0	
MB 160-314992/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-314992/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-314992/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-98387-1

Client Sample ID: PNMW-15

Date Collected: 06/15/17 16:25
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284340	06/22/17 16:02	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285130	06/28/17 05:03	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285291	06/28/17 19:37	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:52	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380049	07/06/17 11:21	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379790	07/05/17 17:05	AFB	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	379790	07/05/17 17:22	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	378173	06/21/17 10:17	JBM	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	378252	06/21/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.57 mL	1.0 g	314979	06/23/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			317602	07/17/17 08:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.57 mL	1.0 g	314992	06/23/17 08:57	LDE	TAL SL
Total/NA	Analysis	9320		1			316470	07/06/17 11:01	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Client Sample ID: PNMW-16

Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284340	06/22/17 16:06	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285130	06/28/17 05:07	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285291	06/28/17 19:42	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:55	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380049	07/06/17 11:16	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379790	07/05/17 17:39	AFB	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	379790	07/05/17 19:09	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	378173	06/21/17 10:17	JBM	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	378252	06/21/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.99 mL	1.0 g	314979	06/23/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			317602	07/17/17 08:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.99 mL	1.0 g	314992	06/23/17 08:57	LDE	TAL SL
Total/NA	Analysis	9320		1			316470	07/06/17 11:01	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-98387-1

Client Sample ID: PNMW-16D

Date Collected: 06/15/17 14:35
Date Received: 06/16/17 09:51

Lab Sample ID: 280-98387-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284340	06/22/17 16:10	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285130	06/28/17 05:20	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	284147	06/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285291	06/28/17 19:46	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 18:01	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380049	07/06/17 11:11	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379790	07/05/17 18:13	AFB	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	379790	07/05/17 19:26	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	378173	06/21/17 10:17	JBM	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	378252	06/21/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.13 mL	1.0 g	314979	06/23/17 08:13	LDE	TAL SL
Total/NA	Analysis	9315		1			317602	07/17/17 08:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.13 mL	1.0 g	314992	06/23/17 08:57	LDE	TAL SL
Total/NA	Analysis	9320		1			316470	07/06/17 11:01	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-98387-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17 *
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17 *
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-17
Wisconsin	State Program	5	999518190	08-31-17 *

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-98387-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17 *
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17 *
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17 *
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-17 *
West Virginia DEP	State Program	3	381	08-31-17 *

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

Test... Denver
4955 Yarrow ...
Arvada, CO 8...
Phone (303) 73... 00 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: J. Bills	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: Anna Lundin	Phone: 518-331-7027	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: 720-633-2380(Tel)	PO #: DEN-001			
Email: anna.lundin@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

280-98387 Chain of Custody

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 - Na2S2SO3, 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)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
~~PNMW-1B~~ FB				Water		N							
~~PNMW-2B~~ FB				Water		N							
~~PNMW-13~~ FB				Water		N							
~~PNMW-14~~ FB				Water		N							
PNMW-15	6/15/17	1625	G	Water		N	1	2	1	1	2	7	
PNMW-16	6/15/17	1435	G	Water		N	1	2	1	1	2	7	
~~PNMW-16~~ FB PNMW-16D	6/15/17	1435	G	Water		N	1	2	1	1	2	7	
~~Field Duplicate~~ FB				Water		N							
~~Equipment Blank~~ FB				Water		N							

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/16/17 951	HDR		6-16-17 0951	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 3.7 IR#7 0-3 Transfer RP 6-16-17

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

Chain of Custody Record

280-98387 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie ..	COC No: 280-403173.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Job #: 280-98387-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 7/17/2017		
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 CCR - Pawnee Station	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-15 (280-98387-1)	6/15/17	16:25 Mountain		Water			X	X	X	2	
PNMW-16 (280-98387-2)	6/15/17	14:35 Mountain		Water			X	X	X	2	
PNMW-16D (280-98387-3)	6/15/17	14:35 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: Takonda Lue	Date/Time: 6/19/17 1435	Company: TAD	Received by: [signature]	Date/Time: 6-20-17 0910	Company: [illegible]
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-403172.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-98387-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 7/12/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S21

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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-15 (280-98387-1)	6/15/17	16:25 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-98387-2)	6/15/17	14:35 Mountain		Water			X	X	1	Use Collision Cell
PNMW-16D (280-98387-3)	6/15/17	14:35 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: Takonda Nue	Date/Time: 6/19/17 1450	Company: TAD	Received by: PCP	Date/Time: 6-20-17 930	Company: TAC
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

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

Canton Facility

Client TA DENVER Site Name ——— Cooler unpacked by: POP

Cooler Received on 6-20-17 Opened on 6-20-17

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

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

TestAmerica Cooler # _____ 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-8 (CF **-0.4** °C) Observed Cooler Temp. ——— °C Corrected Cooler Temp. ——— °C

IR GUN #36 (CF **+0**°C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 1.0 °C

2.	Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes No
	-Were custody seals on the outside of the cooler(s) signed & dated?	Yes No NA
	-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes No
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 11-15 have been checked at the originating laboratory.	
11.	Were sample(s) at the correct pH upon receipt?	Yes No NA pH Strip Lot# **HC697954**
12.	Were VOAs on the COC?	Yes No
13.	Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No NA
14.	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes No
15.	Was a LL Hg or Me Hg trip blank present? _____	Yes No

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

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

Ref: SOP NC-SC-0005, Sample Receiving

\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-052317 Cooler Receipt Form.doc djl

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-98387-1

Login Number: 98387
List Number: 1
Creator: Pottruff, Reed W

List Source: 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: 280-98387-1

Login Number: 98387
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 06/20/17 12:58 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.	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	1.4,0.4
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.	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

TestAmerica Job ID: 280-98387-1

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (40-110)
280-98387-1	PNMW-15	98.2
280-98387-2	PNMW-16	89.1
280-98387-3	PNMW-16D	83.8
LCS 160-314979/2-A	Lab Control Sample	95.3
LCSD 160-314979/3-A	Lab Control Sample Dup	105
MB 160-314979/1-A	Method Blank	96.2

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)
280-98387-1	PNMW-15	98.2	87.1
280-98387-2	PNMW-16	89.1	87.1
280-98387-3	PNMW-16D	83.8	80.4
LCS 160-314992/2-A	Lab Control Sample	95.3	86.0
LCSD 160-314992/3-A	Lab Control Sample Dup	105	84.9
MB 160-314992/1-A	Method Blank	96.2	83.7

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 280-98348-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 11:56:47 AM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@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.

LINKS

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Definitions/Glossary

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

TestAmerica Job ID: 280-98348-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
F1	MS and/or MSD Recovery is outside acceptance limits.

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: 280-98348-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-98348-1

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.

This report may include data with reporting limits (RLs) less than TestAmerica's standard reporting limit. These data and reporting limits are being used specifically to meet the needs of this project. Note that, data are not customarily reported to these levels without qualifiers, because they are inherently less reliable and potentially less defensible than the latest industry standards require.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 6/15/2017 at 8:21 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 8.0º C, 10.7º C, 12.7º C and 16.3º C.

The following samples were received at the laboratory outside the required temperature criteria: PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9). The samples were received without ice at a temperature of 16.3 C, 10.7 C, 12.7 C, and 8.0 C. The client was notified on 6/16/17.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/20/2017 and analyzed on 06/21/2017.

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 (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 06/20/2017 and analyzed on 06/26/2017, 06/28/2017 and 06/29/2017.

Calcium failed the recovery criteria high for the MSD of sample 240-81022-3 in batch 240-284960. 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.

Sample PNMW-14EB (280-98348-9)[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.

Job ID: 280-98348-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

TOTAL MERCURY
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 06/20/2017.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/20/2017 and 06/21/2017.

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

TOTAL SUSPENDED SOLIDS
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 06/16/2017.

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

CORROSIVITY (PH)
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 06/28/2017, 07/06/2017 and 07/11/2017.

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

ANIONS (28 DAYS)
Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 07/05/2017 and 07/06/2017.

Sulfate was detected in method blank MB 280-379910/6 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.

Chloride and Sulfate failed the recovery criteria high for the MS and MSD of sample PNMW-14 (280-98348-4) in batch 280-379786. Refer to the QC report for details.

Sample PNMW-1B (280-98348-1)[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-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 06/22/2017 and 06/23/2017 and analyzed on 07/14/2017 and 07/17/2017.

Radium-226 was detected in method blank MB 160-314747/1-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.

Radium-226 exceeded the RPD limit for the duplicate of sample 160-22818-1. Refer to the QC report for details.

Job ID: 280-98348-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-314979.

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

RADIUM-228

Samples PNMW-1B (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), and PNMW-14EB (280-98348-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 06/22/2017 and 06/23/2017 and analyzed on 06/30/2017 and 07/06/2017.

Radium-228 exceeded the RPD limit for the duplicate of sample 160-22818-1. Refer to the QC report for details.

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-314992.

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 (280-98348-1), PNMW-2B (280-98348-2), PNMW-13 (280-98348-3), PNMW-14 (280-98348-4), PNMW-21 (280-98348-5), PNMW-22 (280-98348-6), PNMW-17 (280-98348-7), PNMW-23 (280-98348-8) and PNMW-14EB (280-98348-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 07/18/2017.

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

TestAmerica Job ID: 280-98348-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-98348-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.25		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0020	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.042		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	140		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0017	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0045	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.019		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.085		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	83		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.84		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	350		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1000		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: PNMW-2B — Lab Sample ID: 280-98348-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.044	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.18		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	89		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0028		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	0.0025	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.037		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.49	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	510		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-13 — Lab Sample ID: 280-98348-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.23		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00075	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-98348-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.049		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	32		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00026	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0065	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.00090	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.055		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.4	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	37		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	370		10	4.7	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-14 — Lab Sample ID: 280-98348-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.069	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.097		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	40		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	0.0060		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0060	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.00084	J	0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0016	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	8.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.6	J F1	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.0		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	23	F1	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	270		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	23		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14EB — Lab Sample ID: 280-98348-9

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-14EB (Continued)

Lab Sample ID: 280-98348-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0023		0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.0029	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.034		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	180		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00064	J	0.0010	0.00021	mg/L	1		6020A	Total Recoverable
Cobalt	0.0089		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.29		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0052		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	5.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	12		10	4.7	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

TestAmerica Job ID: 280-98348-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-98348-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-98348-1	PNMW-1B	Water	06/13/17 10:45	06/15/17 08:21
280-98348-2	PNMW-2B	Water	06/13/17 11:45	06/15/17 08:21
280-98348-3	PNMW-13	Water	06/13/17 13:00	06/15/17 08:21
280-98348-4	PNMW-14	Water	06/13/17 14:35	06/15/17 08:21
280-98348-9	PNMW-14EB	Water	06/13/17 15:00	06/15/17 08:21

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

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.25**		0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 15:54	1

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.044**	**J**	0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 15:58	1

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.23**		0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 16:03	1

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.069**	**J**	0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 16:16	1

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 16:39	1

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

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/20/17 14:00	06/26/17 13:53	1
Arsenic	**0.0020**	**J**	0.0050	0.00075	mg/L		06/20/17 14:00	06/26/17 13:53	1
Barium	**0.042**		0.0050	0.0022	mg/L		06/20/17 14:00	06/26/17 13:53	1
Beryllium	ND		0.0010	0.00031	mg/L		06/20/17 14:00	06/26/17 13:53	1
Calcium	**140**		1.0	0.58	mg/L		06/20/17 14:00	06/26/17 13:53	1
Cadmium	ND		0.0010	0.00021	mg/L		06/20/17 14:00	06/26/17 13:53	1
Cobalt	ND		0.0010	0.00019	mg/L		06/20/17 14:00	06/26/17 13:53	1
Chromium	**0.0017**	**J**	0.0020	0.00098	mg/L		06/20/17 14:00	06/26/17 13:53	1
Molybdenum	**0.0045**	**J**	0.010	0.0011	mg/L		06/20/17 14:00	06/26/17 13:53	1
Lead	ND		0.0010	0.00045	mg/L		06/20/17 14:00	06/26/17 13:53	1
Selenium	**0.019**		0.0050	0.00089	mg/L		06/20/17 14:00	06/26/17 13:53	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/26/17 13:53	1
Lithium	**0.085**		0.0080	0.0017	mg/L		06/20/17 14:00	06/26/17 13:53	1

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/20/17 14:00	06/26/17 13:57	1

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

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00075	mg/L		06/20/17 14:00	06/26/17 13:57	1
Barium	**0.18**		0.0050	0.0022	mg/L		06/20/17 14:00	06/26/17 13:57	1
Beryllium	ND		0.0010	0.00031	mg/L		06/20/17 14:00	06/26/17 13:57	1
Calcium	**89**		1.0	0.58	mg/L		06/20/17 14:00	06/26/17 13:57	1
Cadmium	ND		0.0010	0.00021	mg/L		06/20/17 14:00	06/26/17 13:57	1
Cobalt	ND		0.0010	0.00019	mg/L		06/20/17 14:00	06/26/17 13:57	1
Chromium	**0.0028**		0.0020	0.00098	mg/L		06/20/17 14:00	06/26/17 13:57	1
Molybdenum	**0.0027**	**J**	0.010	0.0011	mg/L		06/20/17 14:00	06/26/17 13:57	1
Lead	ND		0.0010	0.00045	mg/L		06/20/17 14:00	06/26/17 13:57	1
Selenium	**0.0025**	**J**	0.0050	0.00089	mg/L		06/20/17 14:00	06/26/17 13:57	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/26/17 13:57	1
Lithium	**0.037**		0.0080	0.0017	mg/L		06/20/17 14:00	06/26/17 13:57	1

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/20/17 14:00	06/26/17 14:01	1
Arsenic	**0.00075**	**J**	0.0050	0.00075	mg/L		06/20/17 14:00	06/26/17 14:01	1
Barium	**0.049**		0.0050	0.0022	mg/L		06/20/17 14:00	06/26/17 14:01	1
Beryllium	ND		0.0010	0.00031	mg/L		06/20/17 14:00	06/26/17 14:01	1
Calcium	**32**		1.0	0.58	mg/L		06/20/17 14:00	06/26/17 14:01	1
Cadmium	ND		0.0010	0.00021	mg/L		06/20/17 14:00	06/26/17 14:01	1
Cobalt	**0.00026**	**J**	0.0010	0.00019	mg/L		06/20/17 14:00	06/26/17 14:01	1
Chromium	ND		0.0020	0.00098	mg/L		06/20/17 14:00	06/26/17 14:01	1
Molybdenum	**0.0065**	**J**	0.010	0.0011	mg/L		06/20/17 14:00	06/26/17 14:01	1
Lead	ND		0.0010	0.00045	mg/L		06/20/17 14:00	06/26/17 14:01	1
Selenium	**0.00090**	**J**	0.0050	0.00089	mg/L		06/20/17 14:00	06/26/17 14:01	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/26/17 14:01	1
Lithium	**0.055**		0.0080	0.0017	mg/L		06/20/17 14:00	06/26/17 14:01	1

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/20/17 14:00	06/26/17 14:06	1
Arsenic	**0.0014**	**J**	0.0050	0.00075	mg/L		06/20/17 14:00	06/26/17 14:06	1
Barium	**0.097**		0.0050	0.0022	mg/L		06/20/17 14:00	06/26/17 14:06	1
Beryllium	ND		0.0010	0.00031	mg/L		06/20/17 14:00	06/26/17 14:06	1
Calcium	**40**		1.0	0.58	mg/L		06/20/17 14:00	06/26/17 14:06	1
Cadmium	ND		0.0010	0.00021	mg/L		06/20/17 14:00	06/26/17 14:06	1
Cobalt	**0.00043**	**J**	0.0010	0.00019	mg/L		06/20/17 14:00	06/26/17 14:06	1
Chromium	**0.0060**		0.0020	0.00098	mg/L		06/20/17 14:00	06/26/17 14:06	1
Molybdenum	**0.0060**	**J**	0.010	0.0011	mg/L		06/20/17 14:00	06/26/17 14:06	1
Lead	**0.00084**	**J**	0.0010	0.00045	mg/L		06/20/17 14:00	06/26/17 14:06	1
Selenium	**0.0016**	**J**	0.0050	0.00089	mg/L		06/20/17 14:00	06/26/17 14:06	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/26/17 14:06	1
Lithium	**0.035**		0.0080	0.0017	mg/L		06/20/17 14:00	06/26/17 14:06	1

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

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0023**		0.0020	0.00057	mg/L		06/20/17 14:00	06/28/17 00:57	1
Arsenic	**0.0029**	**J**	0.0050	0.00075	mg/L		06/20/17 14:00	06/28/17 00:57	1
Barium	**0.034**		0.0050	0.0022	mg/L		06/20/17 14:00	06/28/17 00:57	1
Beryllium	ND		0.0050	0.0015	mg/L		06/20/17 14:00	06/29/17 11:23	5
Calcium	**180**		1.0	0.58	mg/L		06/20/17 14:00	06/28/17 00:57	1
Cadmium	**0.00064**	**J**	0.0010	0.00021	mg/L		06/20/17 14:00	06/28/17 00:57	1
Cobalt	**0.0089**		0.0010	0.00019	mg/L		06/20/17 14:00	06/28/17 00:57	1
Chromium	ND		0.0020	0.00098	mg/L		06/20/17 14:00	06/28/17 00:57	1
Molybdenum	**0.29**		0.010	0.0011	mg/L		06/20/17 14:00	06/28/17 00:57	1
Lead	ND		0.0010	0.00045	mg/L		06/20/17 14:00	06/28/17 00:57	1
Selenium	**0.0052**		0.0050	0.00089	mg/L		06/20/17 14:00	06/28/17 00:57	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/28/17 00:57	1
Lithium	ND		0.040	0.0083	mg/L		06/20/17 14:00	06/28/17 15:40	5

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:23	1

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:35	1

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:37	1

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:39	1

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:50	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			06/28/17 21:38	1
Temperature	23.8	HF	1.0	1.0	Degrees C			06/28/17 21:38	1
Chloride	83		3.0	0.25	mg/L			07/05/17 18:39	1
Fluoride	0.84		0.50	0.060	mg/L			07/05/17 18:39	1
Sulfate	350		25	1.2	mg/L			07/06/17 01:44	5
Total Dissolved Solids (TDS)	1000		10	4.7	mg/L			06/20/17 08:10	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			06/16/17 17:33	1

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			07/06/17 10:56	1
Temperature	22.5	HF	1.0	1.0	Degrees C			07/06/17 10:56	1
Chloride	14		3.0	0.25	mg/L			07/05/17 18:57	1
Fluoride	0.49	J	0.50	0.060	mg/L			07/05/17 18:57	1
Sulfate	25		5.0	0.23	mg/L			07/05/17 18:57	1
Total Dissolved Solids (TDS)	510		10	4.7	mg/L			06/20/17 08:10	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/16/17 17:33	1

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

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			06/28/17 21:23	1
Temperature	24.0	HF	1.0	1.0	Degrees C			06/28/17 21:23	1
Chloride	1.4	J	3.0	0.25	mg/L			07/05/17 19:50	1
Fluoride	1.3		0.50	0.060	mg/L			07/05/17 19:50	1
Sulfate	37		5.0	0.23	mg/L			07/05/17 19:50	1
Total Dissolved Solids (TDS)	370		10	4.7	mg/L			06/20/17 08:10	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			06/16/17 17:33	1

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

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			06/28/17 21:59	1
Temperature	23.8	HF	1.0	1.0	Degrees C			06/28/17 21:59	1
Chloride	1.6	J F1	3.0	0.25	mg/L			07/05/17 20:07	1
Fluoride	1.0		0.50	0.060	mg/L			07/05/17 20:07	1
Sulfate	23	F1	5.0	0.23	mg/L			07/05/17 20:07	1
Total Dissolved Solids (TDS)	270		10	4.7	mg/L			06/20/17 08:10	1
Total Suspended Solids	23		4.0	1.1	mg/L			06/16/17 17:33	1

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.2	HF	0.1	0.1	SU			07/11/17 11:45	1
Temperature	23.4	HF	1.0	1.0	Degrees C			07/11/17 11:45	1

General Chemistry (Continued)

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			07/06/17 00:15	1
Fluoride	ND		0.50	0.060	mg/L			07/06/17 00:15	1
Sulfate	ND		5.0	0.23	mg/L			07/06/17 00:15	1
Total Dissolved Solids (TDS)	**12**		10	4.7	mg/L			06/20/17 08:10	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/16/17 17:33	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.185**		0.0882	0.0898	1.00	0.0970	pCi/L	06/22/17 10:32	07/14/17 06:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:14*	*1*

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.222**		0.0802	0.0826	1.00	0.0686	pCi/L	06/22/17 10:32	07/14/17 06:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:14*	*1*

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.116**		0.0684	0.0692	1.00	0.0858	pCi/L	06/22/17 10:32	07/14/17 06:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:14*	*1*

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.151**		0.0729	0.0742	1.00	0.0813	pCi/L	06/22/17 10:32	07/14/17 06:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.2*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:15*	*1*

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0189	U	0.0489	0.0490	1.00	0.0910	pCi/L	06/22/17 10:32	07/14/17 06:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.231	U	0.221	0.222	1.00	0.357	pCi/L	06/22/17 10:57	06/30/17 14:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*
Y Carrier	*87.9*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.547**		0.224	0.230	1.00	0.308	pCi/L	06/22/17 10:57	06/30/17 14:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*
Y Carrier	*87.1*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.166	U	0.227	0.227	1.00	0.378	pCi/L	06/22/17 10:57	06/30/17 14:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*
Y Carrier	*87.5*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.260	U	0.236	0.237	1.00	0.380	pCi/L	06/22/17 10:57	06/30/17 14:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.2*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*
Y Carrier	*89.0*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:38*	*1*

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0623	U	0.183	0.183	1.00	0.318	pCi/L	06/22/17 10:57	06/30/17 14:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:39*	*1*
Y Carrier	*92.3*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:39*	*1*

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

Client Sample ID: PNMW-1B
Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.416**		0.238	0.239	5.00	0.357	pCi/L		07/18/17 15:26	1

Client Sample ID: PNMW-2B
Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.768**		0.238	0.244	5.00	0.308	pCi/L		07/18/17 15:26	1

Client Sample ID: PNMW-13
Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.282	U	0.237	0.238	5.00	0.378	pCi/L		07/18/17 15:26	1

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

Client Sample ID: PNMW-14
Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.411**		0.247	0.248	5.00	0.380	pCi/L		07/18/17 15:26	1

Client Sample ID: PNMW-14EB
Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0812	U	0.189	0.189	5.00	0.318	pCi/L		07/18/17 15:26	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-283948/1-A
Matrix: Water
Analysis Batch: 284180

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		06/20/17 14:00	06/21/17 15:23	1

Lab Sample ID: LCS 240-283948/2-A
Matrix: Water
Analysis Batch: 284180

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283948

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

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-283948/1-A
Matrix: Water
Analysis Batch: 284960

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		06/20/17 14:00	06/26/17 12:43	1
Arsenic	ND		0.0050	0.00075	mg/L		06/20/17 14:00	06/26/17 12:43	1
Barium	ND		0.0050	0.0022	mg/L		06/20/17 14:00	06/26/17 12:43	1
Beryllium	ND		0.0010	0.00031	mg/L		06/20/17 14:00	06/26/17 12:43	1
Calcium	ND		1.0	0.58	mg/L		06/20/17 14:00	06/26/17 12:43	1
Cadmium	ND		0.0010	0.00021	mg/L		06/20/17 14:00	06/26/17 12:43	1
Cobalt	ND		0.0010	0.00019	mg/L		06/20/17 14:00	06/26/17 12:43	1
Chromium	ND		0.0020	0.00098	mg/L		06/20/17 14:00	06/26/17 12:43	1
Molybdenum	ND		0.010	0.0011	mg/L		06/20/17 14:00	06/26/17 12:43	1
Lead	ND		0.0010	0.00045	mg/L		06/20/17 14:00	06/26/17 12:43	1
Selenium	ND		0.0050	0.00089	mg/L		06/20/17 14:00	06/26/17 12:43	1
Thallium	ND		0.0010	0.00020	mg/L		06/20/17 14:00	06/26/17 12:43	1
Lithium	ND		0.0080	0.0017	mg/L		06/20/17 14:00	06/26/17 12:43	1

Lab Sample ID: LCS 240-283948/3-A
Matrix: Water
Analysis Batch: 284960

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0999		mg/L		100	80 - 120
Arsenic	1.00	1.04		mg/L		104	80 - 120
Barium	1.00	1.03		mg/L		103	80 - 120
Beryllium	1.00	1.03		mg/L		103	80 - 120
Calcium	10.0	11.1		mg/L		111	80 - 120
Cadmium	1.00	1.08		mg/L		108	80 - 120
Cobalt	1.00	1.07		mg/L		107	80 - 120
Chromium	1.00	1.01		mg/L		101	80 - 120
Molybdenum	0.100	0.0983		mg/L		98	80 - 120
Lead	1.00	1.03		mg/L		103	80 - 120
Selenium	1.00	0.977		mg/L		98	80 - 120
Thallium	0.250	0.252		mg/L		101	80 - 120
Lithium	0.100	0.111		mg/L		111	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-378002/1-A
Matrix: Water
Analysis Batch: 378119

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		06/20/17 11:40	06/20/17 17:19	1

Lab Sample ID: LCS 280-378002/2-A
Matrix: Water
Analysis Batch: 378119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378002

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00500	0.00498		mg/L		100	84 - 120		

Lab Sample ID: 280-98348-1 MS
Matrix: Water
Analysis Batch: 378119

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 378002

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.00500	0.00499		mg/L		100	75 - 125		

Lab Sample ID: 280-98348-1 MSD
Matrix: Water
Analysis Batch: 378119

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 378002

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00502		mg/L		100	75 - 125	1	20

Method: 9040B - pH

Lab Sample ID: LCS 280-379244/54
Matrix: Water
Analysis Batch: 379244

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 280-380049/29
Matrix: Water
Analysis Batch: 380049

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 280-380049/4
Matrix: Water
Analysis Batch: 380049

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: 9040B - pH (Continued)

Lab Sample ID: LCS 280-380557/4
Matrix: Water
Analysis Batch: 380557

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 280-379786/6
Matrix: Water
Analysis Batch: 379786

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	0.25	mg/L			07/05/17 13:18	1
Fluoride	ND		0.50	0.060	mg/L			07/05/17 13:18	1
Sulfate	ND		5.0	0.23	mg/L			07/05/17 13:18	1

Lab Sample ID: LCS 280-379786/4
Matrix: Water
Analysis Batch: 379786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	102		mg/L		102	90 - 110
Fluoride	5.00	5.06		mg/L		101	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-379786/5
Matrix: Water
Analysis Batch: 379786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.06		mg/L		101	90 - 110	0	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-379786/3
Matrix: Water
Analysis Batch: 379786

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.57	J	mg/L		103	50 - 150
Fluoride	0.200	0.164	J	mg/L		82	50 - 150
Sulfate	2.50	2.53	J	mg/L		101	50 - 150

Lab Sample ID: 280-98348-4 MS
Matrix: Water
Analysis Batch: 379786

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1.6	J F1	25.0	33.1	F1	mg/L		126	80 - 120
Fluoride	1.0		5.00	6.38		mg/L		107	80 - 120
Sulfate	23	F1	25.0	55.8	F1	mg/L		131	80 - 120

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

Lab Sample ID: 280-98348-4 MSD
Matrix: Water
Analysis Batch: 379786

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.6	J F1	25.0	33.7	F1	mg/L		128	80 - 120	2	20
Fluoride	1.0		5.00	6.55		mg/L		110	80 - 120	3	20
Sulfate	23	F1	25.0	56.2	F1	mg/L		132	80 - 120	1	20

Lab Sample ID: 280-98348-4 DU
Matrix: Water
Analysis Batch: 379786

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	1.6	J F1	1.56	J	mg/L		1	15
Fluoride	1.0		1.03		mg/L		0.1	15
Sulfate	23	F1	23.2		mg/L		0.1	15

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

Lab Sample ID: MB 280-377968/1
Matrix: Water
Analysis Batch: 377968

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			06/20/17 08:10	1

Lab Sample ID: LCS 280-377968/2
Matrix: Water
Analysis Batch: 377968

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	498		mg/L		100	86 - 110

Lab Sample ID: 280-98348-9 DU
Matrix: Water
Analysis Batch: 377968

Client Sample ID: PNMW-14EB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	12		11.0		mg/L		9	10

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

Lab Sample ID: MB 280-377679/2
Matrix: Water
Analysis Batch: 377679

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/16/17 17:33	1

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

Lab Sample ID: LCS 280-377679/1
Matrix: Water
Analysis Batch: 377679

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	103		mg/L		103	86 - 114

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-314747/1-A
Matrix: Water
Analysis Batch: 317427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314747

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.07001		0.0481	0.0485	1.00	0.0586	pCi/L	06/22/17 10:32	07/14/17 06:13	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*06/22/17 10:32*	*07/14/17 06:13*	*1*

Lab Sample ID: LCS 160-314747/2-A
Matrix: Water
Analysis Batch: 317427

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314747

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	10.27		1.05	1.00	0.0670	pCi/L	90	68 - 137

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

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-314752/1-A
Matrix: Water
Analysis Batch: 315968

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314752

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.001855	U	0.183	0.183	1.00	0.329	pCi/L	06/22/17 10:57	06/30/17 14:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:37*	*1*
Y Carrier	*87.5*		*40 - 110*	*06/22/17 10:57*	*06/30/17 14:37*	*1*

Lab Sample ID: LCS 160-314752/2-A
Matrix: Water
Analysis Batch: 315968

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314752

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.2	13.13		1.42	1.00	0.358	pCi/L	99	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	100		40 - 110
Y Carrier	87.1		40 - 110

Metals

Prep Batch: 283948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total Recoverable	Water	3005A	
280-98348-2	PNMW-2B	Total Recoverable	Water	3005A	
280-98348-3	PNMW-13	Total Recoverable	Water	3005A	
280-98348-4	PNMW-14	Total Recoverable	Water	3005A	
280-98348-9	PNMW-14EB	Total Recoverable	Water	3005A	
MB 240-283948/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-283948/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-283948/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 284180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total Recoverable	Water	6010C	283948
280-98348-2	PNMW-2B	Total Recoverable	Water	6010C	283948
280-98348-3	PNMW-13	Total Recoverable	Water	6010C	283948
280-98348-4	PNMW-14	Total Recoverable	Water	6010C	283948
280-98348-9	PNMW-14EB	Total Recoverable	Water	6010C	283948
MB 240-283948/1-A	Method Blank	Total Recoverable	Water	6010C	283948
LCS 240-283948/2-A	Lab Control Sample	Total Recoverable	Water	6010C	283948

Analysis Batch: 284960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total Recoverable	Water	6020A	283948
280-98348-2	PNMW-2B	Total Recoverable	Water	6020A	283948
280-98348-3	PNMW-13	Total Recoverable	Water	6020A	283948
280-98348-4	PNMW-14	Total Recoverable	Water	6020A	283948
MB 240-283948/1-A	Method Blank	Total Recoverable	Water	6020A	283948
LCS 240-283948/3-A	Lab Control Sample	Total Recoverable	Water	6020A	283948

Analysis Batch: 285130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-9	PNMW-14EB	Total Recoverable	Water	6020A	283948

Analysis Batch: 285233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-9	PNMW-14EB	Total Recoverable	Water	6020A	283948

Analysis Batch: 285541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-9	PNMW-14EB	Total Recoverable	Water	6020A	283948

Prep Batch: 378002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	7470A	
280-98348-2	PNMW-2B	Total/NA	Water	7470A	
280-98348-3	PNMW-13	Total/NA	Water	7470A	
280-98348-4	PNMW-14	Total/NA	Water	7470A	
280-98348-9	PNMW-14EB	Total/NA	Water	7470A	
MB 280-378002/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-378002/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-98348-1 MS	PNMW-1B	Total/NA	Water	7470A	
280-98348-1 MSD	PNMW-1B	Total/NA	Water	7470A	

Analysis Batch: 378119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	7470A	378002
280-98348-2	PNMW-2B	Total/NA	Water	7470A	378002
280-98348-3	PNMW-13	Total/NA	Water	7470A	378002
280-98348-4	PNMW-14	Total/NA	Water	7470A	378002
280-98348-9	PNMW-14EB	Total/NA	Water	7470A	378002
MB 280-378002/1-A	Method Blank	Total/NA	Water	7470A	378002
LCS 280-378002/2-A	Lab Control Sample	Total/NA	Water	7470A	378002
280-98348-1 MS	PNMW-1B	Total/NA	Water	7470A	378002
280-98348-1 MSD	PNMW-1B	Total/NA	Water	7470A	378002

General Chemistry

Analysis Batch: 377679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-98348-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-98348-3	PNMW-13	Total/NA	Water	SM 2540D	
280-98348-4	PNMW-14	Total/NA	Water	SM 2540D	
280-98348-9	PNMW-14EB	Total/NA	Water	SM 2540D	
MB 280-377679/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-377679/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 377968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-98348-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-98348-3	PNMW-13	Total/NA	Water	SM 2540C	
280-98348-4	PNMW-14	Total/NA	Water	SM 2540C	
280-98348-9	PNMW-14EB	Total/NA	Water	SM 2540C	
MB 280-377968/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-377968/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-98348-9 DU	PNMW-14EB	Total/NA	Water	SM 2540C	

Analysis Batch: 379244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	9040B	
280-98348-3	PNMW-13	Total/NA	Water	9040B	
280-98348-4	PNMW-14	Total/NA	Water	9040B	
LCS 280-379244/54	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 379786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	9056A	
280-98348-1	PNMW-1B	Total/NA	Water	9056A	
280-98348-2	PNMW-2B	Total/NA	Water	9056A	
280-98348-3	PNMW-13	Total/NA	Water	9056A	
280-98348-4	PNMW-14	Total/NA	Water	9056A	
280-98348-9	PNMW-14EB	Total/NA	Water	9056A	
MB 280-379786/6	Method Blank	Total/NA	Water	9056A	
LCS 280-379786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-379786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-379786/3	Lab Control Sample	Total/NA	Water	9056A	
280-98348-4 MS	PNMW-14	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 379786 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-4 MSD	PNMW-14	Total/NA	Water	9056A	
280-98348-4 DU	PNMW-14	Total/NA	Water	9056A	

Analysis Batch: 380049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-2	PNMW-2B	Total/NA	Water	9040B	
LCS 280-380049/29	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-380049/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 380557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-9	PNMW-14EB	Total/NA	Water	9040B	
LCS 280-380557/4	Lab Control Sample	Total/NA	Water	9040B	

Rad

Prep Batch: 314747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-98348-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-98348-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-98348-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-98348-9	PNMW-14EB	Total/NA	Water	PrecSep-21	
MB 160-314747/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-314747/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 314752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98348-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-98348-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-98348-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-98348-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-98348-9	PNMW-14EB	Total/NA	Water	PrecSep_0	
MB 160-314752/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-314752/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-98348-1

Client Sample ID: PNMW-1B

Date Collected: 06/13/17 10:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284180	06/21/17 15:54	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			284960	06/26/17 13:53	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:23	CDH	TAL DEN
Total/NA	Analysis	9040B		1			379244	06/28/17 21:38	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379786	07/05/17 18:39	AFB	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	379786	07/06/17 01:44	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	377968	06/20/17 08:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	377679	06/16/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	314747	06/22/17 10:32	LDE	TAL SL
Total/NA	Analysis	9315		1			317427	07/14/17 06:14	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	314752	06/22/17 10:57	LDE	TAL SL
Total/NA	Analysis	9320		1			315968	06/30/17 14:38	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 06/13/17 11:45
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284180	06/21/17 15:58	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			284960	06/26/17 13:57	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:35	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380049	07/06/17 10:56	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379786	07/05/17 18:57	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	377968	06/20/17 08:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	377679	06/16/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.44 mL	1.0 g	314747	06/22/17 10:32	LDE	TAL SL
Total/NA	Analysis	9315		1			317427	07/14/17 06:14	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.44 mL	1.0 g	314752	06/22/17 10:57	LDE	TAL SL
Total/NA	Analysis	9320		1			315968	06/30/17 14:38	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-98348-1

Client Sample ID: PNMW-13

Date Collected: 06/13/17 13:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284180	06/21/17 16:03	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			284960	06/26/17 14:01	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:37	CDH	TAL DEN
Total/NA	Analysis	9040B		1			379244	06/28/17 21:23	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379786	07/05/17 19:50	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	377968	06/20/17 08:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	377679	06/16/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.04 mL	1.0 g	314747	06/22/17 10:32	LDE	TAL SL
Total/NA	Analysis	9315		1			317427	07/14/17 06:14	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.04 mL	1.0 g	314752	06/22/17 10:57	LDE	TAL SL
Total/NA	Analysis	9320		1			315968	06/30/17 14:38	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Client Sample ID: PNMW-14

Date Collected: 06/13/17 14:35
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284180	06/21/17 16:16	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			284960	06/26/17 14:06	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:39	CDH	TAL DEN
Total/NA	Analysis	9040B		1			379244	06/28/17 21:59	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379786	07/05/17 20:07	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	377968	06/20/17 08:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	377679	06/16/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.10 mL	1.0 g	314747	06/22/17 10:32	LDE	TAL SL
Total/NA	Analysis	9315		1			317427	07/14/17 06:15	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.10 mL	1.0 g	314752	06/22/17 10:57	LDE	TAL SL
Total/NA	Analysis	9320		1			315968	06/30/17 14:38	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-98348-1

Client Sample ID: PNMW-14EB

Date Collected: 06/13/17 15:00
Date Received: 06/15/17 08:21

Lab Sample ID: 280-98348-9

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	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			284180	06/21/17 16:39	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			285130	06/28/17 00:57	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		5			285233	06/28/17 15:40	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	283948	06/20/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		5			285541	06/29/17 11:23	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	378002	06/20/17 11:40	CDH	TAL DEN
Total/NA	Analysis	7470A		1			378119	06/20/17 17:50	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380557	07/11/17 11:45	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	379786	07/06/17 00:15	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	377968	06/20/17 08:10	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	377679	06/16/17 17:33	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.85 mL	1.0 g	314747	06/22/17 10:32	LDE	TAL SL
Total/NA	Analysis	9315		1			317427	07/14/17 06:15	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.85 mL	1.0 g	314752	06/22/17 10:57	LDE	TAL SL
Total/NA	Analysis	9320		1			315968	06/30/17 14:39	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			318027	07/18/17 15:26	RTM	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-98348-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-98348-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information
Client Contact: Anna Lundin
Company: HDR Inc
Address: 9781 S. Meridian Blve Suite 400
City: Englewood
State, Zip: CO, 80112
Phone: 720-633-2380(Tel)
Email: anna.lundin@hdrinc.com
Project Name: Xcel Energy GW CCR Monitoring - Pawnee
Site: Colorado

Sampler: J. Bills
Phone: 618-331-7027
Lab PM: Rothmeyer, Stephanie K
E-Mail: stephanie.rothmeyer@testamericainc.com
Carrier Tracking No(s):
COC No:
Page: Page 1 of 1
Job #:

Due Date Requested:
TAT Requested (days): Standard
PO #: DEN-001
WO #:
Project #: 28014378
SSOW#:

Analysis Requested

280-98348 Chain of Custody

Preservation Codes:
- HCL
- NaOH
- Zn Acetate
- Nitric Acid
- NaHSO4
- MeOH
- Amchlor
- Ascorbic Acid
- Ice
- DI Water
- EDTA
- EDA
- Hexane
- None
- AsNaO2
- Na2O4S
- Na2SO3
- Na2S2SO3
- H2SO4
- TSP Dodecahydrate
- Acetone
- MCAA
- ph 4-5
- 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)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	6/13/17	1045	G	Water	N		1	2	1	1	2	7	
PNMW-2B	6/13/17	1145	G	Water	N		1	2	1	1	2	7	
PNMW-13	6/13/17	1300	G	Water	N		1	2	1	1	2	7	
PNMW-14	6/13/17	1435	G	Water	N		1	2	1	1	2	7	
PNMW-~~15~~ 21	6/14/17	1550	G	Water	N		1	2	1	1	2	7	
PNMW-~~16~~ 22	6/14/17	1430	G	Water	N		1	2	1	1	2	7	
PNMW-17	6/14/17	1115	G	Water	N		1	2	1	1	2	7	
~~Field Duplicate~~ ~~35~~ PNMW-23	6/14/17	1255	G	Water	N		1	2	1	1	2	7	
~~Equipment Blank~~ ~~37~~ PNMW-14EB	6/13/17	1500	G	Water	N		1	2	1	1	2	7	

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 6/15/17 0821	Company: HDR	Received by:	Date/Time: 6/15/17 0821	Company: TAD	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

Cooler Temperature(s) °C and Other Remarks: 1.6, 3.1, 0.7, 1.7, 7.8-0 +0.0 IR#7 Transferred by NCB 6/16/17

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

Chain of Custody Record

280-98348 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie	COC No: 280-403003.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Page: Page 1 of 1
Address: 13715 Rider Trail North, ,	Due Date Requested: 7/14/2017		Job #: 280-98348-1
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 CCR - Pawnee Station	SSOW#:		

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-98348-1)	6/13/17	10:45 Mountain		Water			X	X	X	2	
PNMW-2B (280-98348-2)	6/13/17	11:45 Mountain		Water			X	X	X	2	
PNMW-13 (280-98348-3)	6/13/17	13:00 Mountain		Water			X	X	X	2	
PNMW-14 (280-98348-4)	6/13/17	14:35 Mountain		Water			X	X	X	2	
PNMW-21 (280-98348-5)	6/14/17	15:50 Mountain		Water			X	X	X	2	
PNMW-22 (280-98348-6)	6/14/17	14:30 Mountain		Water			X	X	X	2	
PNMW-17 (280-98348-7)	6/14/17	11:15 Mountain		Water			X	X	X	2	
PNMW-23 (280-98348-8)	6/14/17	12:55 Mountain		Water			X	X	X	2	
PNMW-14EB (280-98348-9)	6/13/17	15:00 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: 6/16/17 1420	Company TAL	Received by:	Date/Time: 6-17-17 0825	Company FAS	
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:

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

19.3 | C19.3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-403002.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-98348-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 7/11/2017			
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 CCR - Pawnee Station	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

S17

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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-98348-1)	6/13/17	10:45 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-98348-2)	6/13/17	11:45 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-98348-3)	6/13/17	13:00 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-98348-4)	6/13/17	14:35 Mountain		Water			X	X	1	Use Collision Cell
PNMW-21 (280-98348-5)	6/14/17	15:50 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-22 (280-98348-6)	6/14/17	14:30 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-98348-7)	6/14/17	11:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-23 (280-98348-8)	6/14/17	12:55 Mountain		Water			X	X	1	Use Collision Cell
PNMW-14EB (280-98348-9)	6/13/17	15:00 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	6/16/17 1430	TAD	[signature]	6/17/17 0940	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Canton Facility

Client Denver Site Name _____ Cooler unpacked by:

Cooler Received on 6-17-17 Opened on 6-19-17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt

IR GUN# IR-8 (CF **-0.4** °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN #36 (CF **+0**°C) Observed Cooler Temp. 19.3 °C Corrected Cooler Temp. 19.3 °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were custody seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
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?		NA
If yes, Questions 11-15 have been checked at the originating laboratory.		
11. Were sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC697954**
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

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

Ref: SOP NC-SC-0005, Sample Receiving

\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-052317 Cooler Receipt Form.doc djl

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-98348-1

Login Number: 98348
List Number: 1
Creator: Gomez, Alyssa I

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-98348-1

Login Number: 98348
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 06/17/17 12:47 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.	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	1.0,17.0,17.0,17.0
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.	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

TestAmerica Job ID: 280-98348-1

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-98348-1	PNMW-1B	94.4
280-98348-2	PNMW-2B	99.4
280-98348-3	PNMW-13	93.8
280-98348-4	PNMW-14	96.2
280-98348-9	PNMW-14EB	97.9
LCS 160-314747/2-A	Lab Control Sample	100
MB 160-314747/1-A	Method Blank	105

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-98348-1	PNMW-1B	94.4	87.9
280-98348-2	PNMW-2B	99.4	87.1
280-98348-3	PNMW-13	93.8	87.5
280-98348-4	PNMW-14	96.2	89.0
280-98348-9	PNMW-14EB	97.9	92.3
LCS 160-314752/2-A	Lab Control Sample	100	87.1
MB 160-314752/1-A	Method Blank	105	87.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-99201-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 12:38:23 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

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

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

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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.
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.

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)
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: 280-99201-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-99201-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 7/13/2017 at 12:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.1º C, 3.1º C, 3.9º C, 4.3º C and 5.9º C.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 07/18/2017 and analyzed on 07/20/2017.

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 (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 07/18/2017 and analyzed on 07/26/2017 and 07/27/2017.

Calcium failed the recovery criteria high for the MSD of sample PNMW-1B (280-99201-1) in batch 240-288778. 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY
Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 07/27/2017.

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

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Laboratory: TestAmerica Denver (Continued)

TOTAL DISSOLVED SOLIDS

Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 07/17/2017 and 07/19/2017.

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

TOTAL SUSPENDED SOLIDS

Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 07/14/2017.

The following sample was diluted due to slow filtration and high Total Suspended Solids: PNMW-15 (280-99201-5). Elevated reporting limits (RLs) are provided.

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

CORROSIVITY (PH)

Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 07/15/2017.

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

ANIONS (28 DAYS)

Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 07/17/2017 and 07/18/2017.

Samples PNMW-1B (280-99201-1)[5X], PNMW-15 (280-99201-5)[10X], and PNMW-16 (280-99201-6)[10X] 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 (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 07/20/2017 and analyzed on 08/11/2017.

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-318345.

The following sample was reduced due to heavy amounts of sediment making sample murky: PNMW-1B (280-99201-1).

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

RADIUM-228

Samples PNMW-1B (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 07/20/2017 and 08/02/2017 and analyzed on 07/31/2017 and 08/07/2017.

Radium-228 was detected in method blank MB 160-318360/1-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.

The following sample was reduced due to heavy amounts of sediment making sample murky: PNMW-15 (280-99201-5).

Job ID: 280-99201-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batches 160-318360 or 160-320355.

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 (280-99201-1), PNMW-2B (280-99201-2), PNMW-13 (280-99201-3), PNMW-14 (280-99201-4), PNMW-15 (280-99201-5), PNMW-16 (280-99201-6), PNMW-2BDUP (280-99201-8), and PNMW-14EB (280-99201-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 08/11/2017.

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-99201-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.24		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0024	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.040		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	140		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00025	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0045	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.020		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.080		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	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	89		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.83		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	360		25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1100		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2B — Lab Sample ID: 280-99201-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.047	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.20		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	97		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0016	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0028	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0023	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	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.46	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	26		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	550		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-13 — Lab Sample ID: 280-99201-3

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-99201-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.25		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.050		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	39		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.00042	J	0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0059	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.055		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.4	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	37		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	390		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: PNMW-14 — Lab Sample ID: 280-99201-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.067	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00093	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.094		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	40		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0028		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0058	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	0.033		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.8	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.0		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	260		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-15 — Lab Sample ID: 280-99201-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0039	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-15 (Continued) — Lab Sample ID: 280-99201-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.14		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.00054	J	0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0064		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.020		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0023	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0086		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	0.15		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.9	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1000		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	340		8.3	2.3	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-99201-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.39		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.035		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	240		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0020		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0034	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.14		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.5	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.26	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	32		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2BDUP — Lab Sample ID: 280-99201-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.046	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-2BDUP (Continued)

Lab Sample ID: 280-99201-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.20		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	97		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0017	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	0.0024	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.034		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	15		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	27		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	530		10	4.7	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-14EB

Lab Sample ID: 280-99201-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0039	J	0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Chromium	0.0020		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	6.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	10		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	9.0	J	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

TestAmerica Job ID: 280-99201-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-99201-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-99201-1	PNMW-1B	Water	07/11/17 14:30	07/13/17 12:00
280-99201-2	PNMW-2B	Water	07/11/17 09:20	07/13/17 12:00
280-99201-3	PNMW-13	Water	07/10/17 16:15	07/13/17 12:00
280-99201-4	PNMW-14	Water	07/10/17 14:00	07/13/17 12:00
280-99201-5	PNMW-15	Water	07/10/17 19:30	07/13/17 12:00
280-99201-6	PNMW-16	Water	07/11/17 11:50	07/13/17 12:00
280-99201-8	PNMW-2BDUP	Water	07/11/17 09:40	07/13/17 12:00
280-99201-9	PNMW-14EB	Water	07/10/17 14:10	07/13/17 12:00

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

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.24		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:10	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.047	J	0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:32	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.25		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:37	1

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.067	J	0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:42	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:56	1

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.39		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 16:00	1

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.046	J	0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 16:10	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 16:14	1

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

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00
Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 11:01	1

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

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0024**	**J**	0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 11:01	1
Barium	**0.040**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 11:01	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 11:01	1
Calcium	**140**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 11:01	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 11:01	1
Cobalt	**0.00025**	**J**	0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 11:01	1
Chromium	**0.0027**		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 11:01	1
Molybdenum	**0.0045**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 11:01	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 11:01	1
Selenium	**0.020**		0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 11:01	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 11:01	1
Lithium	**0.080**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 11:01	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:29	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:29	1
Barium	**0.20**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:29	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:29	1
Calcium	**97**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:29	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:29	1
Cobalt	ND		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:29	1
Chromium	**0.0016**	**J**	0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:29	1
Molybdenum	**0.0028**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:29	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:29	1
Selenium	**0.0023**	**J**	0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:29	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:29	1
Lithium	**0.035**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:29	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:33	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:33	1
Barium	**0.050**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:33	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:33	1
Calcium	**39**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:33	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:33	1
Cobalt	**0.00042**	**J**	0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:33	1
Chromium	ND		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:33	1
Molybdenum	**0.0059**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:33	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:33	1
Selenium	ND		0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:33	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:33	1
Lithium	**0.055**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:33	1

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

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:38	1
Arsenic	**0.00093**	**J**	0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:38	1
Barium	**0.094**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:38	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:38	1
Calcium	**40**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:38	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:38	1
Cobalt	ND		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:38	1
Chromium	**0.0028**		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:38	1
Molybdenum	**0.0058**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:38	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:38	1
Selenium	**0.0019**	**J**	0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:38	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:38	1
Lithium	**0.033**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:38	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:42	1
Arsenic	**0.0039**	**J**	0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:42	1
Barium	**0.14**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:42	1
Beryllium	**0.00054**	**J**	0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:42	1
Calcium	**240**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:42	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:42	1
Cobalt	**0.0064**		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:42	1
Chromium	**0.020**		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:42	1
Molybdenum	**0.0023**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:42	1
Lead	**0.0086**		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:42	1
Selenium	**0.0028**	**J**	0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:42	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:42	1
Lithium	**0.15**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:42	1

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:46	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:46	1
Barium	**0.035**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:46	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:46	1
Calcium	**240**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:46	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:46	1
Cobalt	**0.0020**		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:46	1
Chromium	ND		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:46	1
Molybdenum	**0.0034**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:46	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:46	1
Selenium	ND		0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:46	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:46	1
Lithium	**0.14**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:46	1

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

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:55	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:55	1
Barium	**0.20**		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:55	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:55	1
Calcium	**97**		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:55	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:55	1
Cobalt	ND		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:55	1
Chromium	**0.0017**	**J**	0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:55	1
Molybdenum	**0.0027**	**J**	0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:55	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:55	1
Selenium	**0.0024**	**J**	0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:55	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:55	1
Lithium	**0.034**		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:55	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 23:59	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 23:59	1
Barium	**0.0039**	**J**	0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 23:59	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 23:59	1
Calcium	ND		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 23:59	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 23:59	1
Cobalt	ND		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 23:59	1
Chromium	**0.0020**		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 23:59	1
Molybdenum	ND		0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 23:59	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 23:59	1
Selenium	ND		0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 23:59	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 23:59	1
Lithium	ND		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 23:59	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 15:57	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:04	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:11	1

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:13	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:15	1

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:17	1

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:26	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 16:28	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			07/15/17 09:41	1
Temperature	21.3	HF	1.0	1.0	Degrees C			07/15/17 09:41	1
Chloride	89		3.0	0.25	mg/L			07/17/17 23:07	1
Fluoride	0.83		0.50	0.060	mg/L			07/17/17 23:07	1
Sulfate	360		25	1.2	mg/L			07/18/17 15:52	5
Total Dissolved Solids (TDS)	1100		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	4.8		4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			07/15/17 10:01	1

General Chemistry (Continued)

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	21.4	HF	1.0	1.0	Degrees C			07/15/17 10:01	1
Chloride	14		3.0	0.25	mg/L			07/17/17 23:25	1
Fluoride	0.46	J	0.50	0.060	mg/L			07/17/17 23:25	1
Sulfate	26		5.0	0.23	mg/L			07/17/17 23:25	1
Total Dissolved Solids (TDS)	550		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			07/15/17 10:31	1
Temperature	21.4	HF	1.0	1.0	Degrees C			07/15/17 10:31	1
Chloride	1.4	J	3.0	0.25	mg/L			07/17/17 23:43	1
Fluoride	1.3		0.50	0.060	mg/L			07/17/17 23:43	1
Sulfate	37		5.0	0.23	mg/L			07/17/17 23:43	1
Total Dissolved Solids (TDS)	390		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

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			07/15/17 09:31	1
Temperature	21.4	HF	1.0	1.0	Degrees C			07/15/17 09:31	1
Chloride	1.8	J	3.0	0.25	mg/L			07/18/17 00:36	1
Fluoride	1.0		0.50	0.060	mg/L			07/18/17 00:36	1
Sulfate	25		5.0	0.23	mg/L			07/18/17 00:36	1
Total Dissolved Solids (TDS)	260		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			07/15/17 10:16	1
Temperature	21.6	HF	1.0	1.0	Degrees C			07/15/17 10:16	1
Chloride	2.9	J	3.0	0.25	mg/L			07/18/17 01:47	1
Fluoride	0.24	J	0.50	0.060	mg/L			07/18/17 01:47	1
Sulfate	1000		50	2.3	mg/L			07/18/17 16:08	10
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	340		8.3	2.3	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			07/15/17 09:51	1
Temperature	21.2	HF	1.0	1.0	Degrees C			07/15/17 09:51	1
Chloride	2.5	J	3.0	0.25	mg/L			07/18/17 02:04	1

General Chemistry (Continued)

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.26	J	0.50	0.060	mg/L			07/18/17 02:04	1
Sulfate	1100		50	2.3	mg/L			07/18/17 16:25	10
Total Dissolved Solids (TDS)	2000		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	32		4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			07/15/17 09:09	1
Temperature	21.0	HF	1.0	1.0	Degrees C			07/15/17 09:09	1
Chloride	15		3.0	0.25	mg/L			07/18/17 02:40	1
Fluoride	0.45	J	0.50	0.060	mg/L			07/18/17 02:40	1
Sulfate	27		5.0	0.23	mg/L			07/18/17 02:40	1
Total Dissolved Solids (TDS)	530		10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			07/14/17 15:44	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.3	HF	0.1	0.1	SU			07/15/17 09:13	1
Temperature	20.9	HF	1.0	1.0	Degrees C			07/15/17 09:13	1
Chloride	ND		3.0	0.25	mg/L			07/18/17 02:57	1
Fluoride	ND		0.50	0.060	mg/L			07/18/17 02:57	1
Sulfate	10		5.0	0.23	mg/L			07/18/17 02:57	1
Total Dissolved Solids (TDS)	9.0	J	10	4.7	mg/L			07/17/17 15:55	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			07/14/17 15:44	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.320		0.102	0.106	1.00	0.0808	pCi/L	07/20/17 08:43	08/11/17 06:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*40 - 110*	*07/20/17 08:43*	*08/11/17 06:07*	*1*

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.305		0.0992	0.103	1.00	0.0813	pCi/L	07/20/17 08:43	08/11/17 06:07	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.204		0.0892	0.0910	1.00	0.0889	pCi/L	07/20/17 08:43	08/11/17 06:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.3		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0492	U	0.0559	0.0561	1.00	0.0893	pCi/L	07/20/17 08:43	08/11/17 06:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.4		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.549		0.160	0.168	1.00	0.136	pCi/L	07/20/17 08:43	08/11/17 06:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.312		0.105	0.108	1.00	0.0932	pCi/L	07/20/17 08:43	08/11/17 06:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.9		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.315		0.103	0.107	1.00	0.0906	pCi/L	07/20/17 08:43	08/11/17 06:07	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110	07/20/17 08:43	08/11/17 06:07	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0302	U	0.0492	0.0493	1.00	0.0863	pCi/L	07/20/17 08:43	08/11/17 06:08	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110	07/20/17 08:43	08/11/17 06:08	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.50		0.445	0.466	1.00	0.581	pCi/L	07/20/17 09:35	07/31/17 10:27	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110	07/20/17 09:35	07/31/17 10:27	1
Y Carrier	57.2		40 - 110	07/20/17 09:35	07/31/17 10:27	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.827		0.294	0.304	1.00	0.401	pCi/L	07/20/17 09:35	07/31/17 10:27	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110	07/20/17 09:35	07/31/17 10:27	1
Y Carrier	77.8		40 - 110	07/20/17 09:35	07/31/17 10:27	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.511		0.276	0.280	1.00	0.409	pCi/L	07/20/17 09:35	07/31/17 10:27	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.3		40 - 110	07/20/17 09:35	07/31/17 10:27	1
Y Carrier	79.3		40 - 110	07/20/17 09:35	07/31/17 10:27	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.156	U	0.318	0.318	1.00	0.543	pCi/L	07/20/17 09:35	07/31/17 10:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.4*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:27*	*1*
Y Carrier	*61.3*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:27*	*1*

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.794**		0.397	0.404	1.00	0.583	pCi/L	07/20/17 09:35	07/31/17 11:26	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.5*		*40 - 110*	*07/20/17 09:35*	*07/31/17 11:26*	*1*
Y Carrier	*83.4*		*40 - 110*	*07/20/17 09:35*	*07/31/17 11:26*	*1*

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.878**		0.294	0.304	1.00	0.393	pCi/L	07/20/17 09:35	07/31/17 10:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:27*	*1*
Y Carrier	*82.6*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:27*	*1*

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.03**		0.372	0.384	1.00	0.515	pCi/L	07/20/17 09:35	07/31/17 10:29	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.2*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:29*	*1*
Y Carrier	*64.7*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:29*	*1*

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.555**		0.266	0.271	1.00	0.387	pCi/L	07/20/17 09:35	07/31/17 10:29	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110	07/20/17 09:35	07/31/17 10:29	1
Y Carrier	77.4		40 - 110	07/20/17 09:35	07/31/17 10:29	1

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

Client Sample ID: PNMW-1B
Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.82		0.457	0.478	5.00	0.581	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-2B
Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.13		0.310	0.321	5.00	0.401	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-13
Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.715		0.290	0.294	5.00	0.409	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-14
Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.205	U	0.323	0.323	5.00	0.543	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-15
Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.34		0.428	0.437	5.00	0.583	pCi/L		08/11/17 16:30	1

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

Client Sample ID: PNMW-16
Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.19		0.312	0.323	5.00	0.393	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-2BDUP
Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.35		0.386	0.399	5.00	0.515	pCi/L		08/11/17 16:30	1

Client Sample ID: PNMW-14EB
Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.585		0.270	0.275	5.00	0.387	pCi/L		08/11/17 16:30	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-287666/1-A
Matrix: Water
Analysis Batch: 288058

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		07/18/17 14:00	07/20/17 15:01	1

Lab Sample ID: LCS 240-287666/2-A
Matrix: Water
Analysis Batch: 288058

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.993		mg/L		99	80 - 120

Lab Sample ID: 280-99201-1 MS
Matrix: Water
Analysis Batch: 288058

Client Sample ID: PNMW-1B
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.24		1.00	1.32		mg/L		108	75 - 125

Lab Sample ID: 280-99201-1 MSD
Matrix: Water
Analysis Batch: 288058

Client Sample ID: PNMW-1B
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.24		1.00	1.34		mg/L		110	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-287666/1-A
Matrix: Water
Analysis Batch: 288778

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		07/18/17 14:00	07/26/17 10:53	1
Arsenic	ND		0.0050	0.00075	mg/L		07/18/17 14:00	07/26/17 10:53	1
Barium	ND		0.0050	0.0022	mg/L		07/18/17 14:00	07/26/17 10:53	1
Beryllium	ND		0.0010	0.00031	mg/L		07/18/17 14:00	07/26/17 10:53	1
Calcium	ND		1.0	0.58	mg/L		07/18/17 14:00	07/26/17 10:53	1
Cadmium	ND		0.0010	0.00021	mg/L		07/18/17 14:00	07/26/17 10:53	1
Cobalt	ND		0.0010	0.00019	mg/L		07/18/17 14:00	07/26/17 10:53	1
Chromium	ND		0.0020	0.00098	mg/L		07/18/17 14:00	07/26/17 10:53	1
Molybdenum	ND		0.010	0.0011	mg/L		07/18/17 14:00	07/26/17 10:53	1
Lead	ND		0.0010	0.00045	mg/L		07/18/17 14:00	07/26/17 10:53	1
Selenium	ND		0.0050	0.00089	mg/L		07/18/17 14:00	07/26/17 10:53	1
Thallium	ND		0.0010	0.00020	mg/L		07/18/17 14:00	07/26/17 10:53	1
Lithium	ND		0.0080	0.0017	mg/L		07/18/17 14:00	07/26/17 10:53	1

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

Lab Sample ID: LCS 240-287666/3-A
Matrix: Water
Analysis Batch: 288778

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0925		mg/L		93	80 - 120
Arsenic	1.00	0.955		mg/L		96	80 - 120
Barium	1.00	0.937		mg/L		94	80 - 120
Beryllium	1.00	1.03		mg/L		103	80 - 120
Calcium	10.0	10.2		mg/L		102	80 - 120
Cadmium	1.00	1.00		mg/L		100	80 - 120
Cobalt	1.00	0.999		mg/L		100	80 - 120
Chromium	1.00	0.993		mg/L		99	80 - 120
Molybdenum	0.100	0.0928		mg/L		93	80 - 120
Lead	1.00	0.991		mg/L		99	80 - 120
Selenium	1.00	0.970		mg/L		97	80 - 120
Thallium	0.250	0.246		mg/L		98	80 - 120
Lithium	0.100	0.0992		mg/L		99	80 - 120

Lab Sample ID: 280-99201-1 MS
Matrix: Water
Analysis Batch: 288778

Client Sample ID: PNMW-1B
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		0.100	0.103		mg/L		103	75 - 125
Arsenic	0.0024	J	1.00	1.04		mg/L		104	75 - 125
Barium	0.040		1.00	1.09		mg/L		105	75 - 125
Beryllium	ND		1.00	1.03		mg/L		103	75 - 125
Calcium	140		10.0	155	4	mg/L		119	75 - 125
Cadmium	ND		1.00	1.00		mg/L		100	75 - 125
Cobalt	0.00025	J	1.00	0.990		mg/L		99	75 - 125
Chromium	0.0027		1.00	1.01		mg/L		101	75 - 125
Molybdenum	0.0045	J	0.100	0.112		mg/L		108	75 - 125
Lead	ND		1.00	0.976		mg/L		98	75 - 125
Selenium	0.020		1.00	1.01		mg/L		99	75 - 125
Thallium	ND		0.250	0.243		mg/L		97	75 - 125
Lithium	0.080		0.100	0.181		mg/L		100	75 - 125

Lab Sample ID: 280-99201-1 MSD
Matrix: Water
Analysis Batch: 288778

Client Sample ID: PNMW-1B
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		0.100	0.105		mg/L		105	75 - 125	2	20
Arsenic	0.0024	J	1.00	1.06		mg/L		106	75 - 125	2	20
Barium	0.040		1.00	1.11		mg/L		107	75 - 125	2	20
Beryllium	ND		1.00	1.06		mg/L		106	75 - 125	3	20
Calcium	140		10.0	159	4	mg/L		161	75 - 125	3	20
Cadmium	ND		1.00	1.02		mg/L		102	75 - 125	2	20
Cobalt	0.00025	J	1.00	1.03		mg/L		103	75 - 125	4	20
Chromium	0.0027		1.00	1.04		mg/L		104	75 - 125	3	20
Molybdenum	0.0045	J	0.100	0.114		mg/L		109	75 - 125	1	20
Lead	ND		1.00	0.998		mg/L		100	75 - 125	2	20

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

Lab Sample ID: 280-99201-1 MSD
Matrix: Water
Analysis Batch: 288778

Client Sample ID: PNMW-1B
Prep Type: Total Recoverable
Prep Batch: 287666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	0.020		1.00	1.02		mg/L		100	75 - 125	0	20
Thallium	ND		0.250	0.250		mg/L		100	75 - 125	3	20
Lithium	0.080		0.100	0.188		mg/L		107	75 - 125	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-382228/1-A
Matrix: Water
Analysis Batch: 382363

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 382228

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		07/27/17 11:42	07/27/17 15:22	1

Lab Sample ID: LCS 280-382228/2-A
Matrix: Water
Analysis Batch: 382363

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 382228

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00498		mg/L		100	84 - 120

Lab Sample ID: 280-99201-1 MS
Matrix: Water
Analysis Batch: 382363

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 382228

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00500	0.00500		mg/L		100	75 - 125

Lab Sample ID: 280-99201-1 MSD
Matrix: Water
Analysis Batch: 382363

Client Sample ID: PNMW-1B
Prep Type: Total/NA
Prep Batch: 382228

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00497		mg/L		99	75 - 125	0	20

Method: 9040B - pH

Lab Sample ID: LCS 280-380957/29
Matrix: Water
Analysis Batch: 380957

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 280-380957/4
Matrix: Water
Analysis Batch: 380957

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: 9040B - pH (Continued)

Lab Sample ID: 280-99201-4 DU
Matrix: Water
Analysis Batch: 380957

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	8.2	HF	8.2		SU		0.1	5
Temperature	21.4	HF	21.5		Degrees C		0.6	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-381074/6
Matrix: Water
Analysis Batch: 381074

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	0.25	mg/L			07/17/17 20:46	1
Fluoride	ND		0.50	0.060	mg/L			07/17/17 20:46	1
Sulfate	ND		5.0	0.23	mg/L			07/17/17 20:46	1

Lab Sample ID: LCS 280-381074/4
Matrix: Water
Analysis Batch: 381074

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.17		mg/L		103	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-381074/5
Matrix: Water
Analysis Batch: 381074

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.20		mg/L		104	90 - 110	1	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-381074/3
Matrix: Water
Analysis Batch: 381074

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.54	J	mg/L		102	50 - 150
Fluoride	0.200	0.154	J	mg/L		77	50 - 150
Sulfate	2.50	2.54	J	mg/L		102	50 - 150

Lab Sample ID: 280-99201-4 MS
Matrix: Water
Analysis Batch: 381074

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1.8	J	25.0	30.0		mg/L		113	80 - 120
Fluoride	1.0		5.00	5.80		mg/L		96	80 - 120
Sulfate	25		25.0	52.1		mg/L		110	80 - 120

Lab Sample ID: 280-99201-4 MSD
Matrix: Water
Analysis Batch: 381074

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.8	J	25.0	30.5		mg/L		114	80 - 120	2	20
Fluoride	1.0		5.00	5.85		mg/L		97	80 - 120	1	20
Sulfate	25		25.0	54.0		mg/L		118	80 - 120	4	20

Lab Sample ID: 280-99201-4 DU
Matrix: Water
Analysis Batch: 381074

Client Sample ID: PNMW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	1.8	J	1.82	J	mg/L		0.9	15
Fluoride	1.0		1.02		mg/L		0.2	15
Sulfate	25		24.5		mg/L		0.06	15

Lab Sample ID: MB 280-381125/6
Matrix: Water
Analysis Batch: 381125

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	0.25	mg/L			07/18/17 10:10	1
Sulfate	ND		5.0	0.23	mg/L			07/18/17 10:10	1

Lab Sample ID: LCS 280-381125/4
Matrix: Water
Analysis Batch: 381125

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

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

Lab Sample ID: LCSD 280-381125/5
Matrix: Water
Analysis Batch: 381125

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	102		mg/L		102	90 - 110	0	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-381125/3
Matrix: Water
Analysis Batch: 381125

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.51	J	mg/L		101	50 - 150
Sulfate	2.50	2.41	J	mg/L		96	50 - 150

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

Lab Sample ID: MB 280-381059/1
Matrix: Water
Analysis Batch: 381059

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			07/17/17 15:55	1

Lab Sample ID: LCS 280-381059/2
Matrix: Water
Analysis Batch: 381059

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	477		mg/L		95	86 - 110

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

Lab Sample ID: MB 280-380872/3
Matrix: Water
Analysis Batch: 380872

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			07/14/17 15:44	1

Lab Sample ID: LCS 280-380872/1
Matrix: Water
Analysis Batch: 380872

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	93.6		mg/L		94	86 - 114

Lab Sample ID: LCSD 280-380872/2
Matrix: Water
Analysis Batch: 380872

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	100	95.2		mg/L		95	86 - 114	2	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-318345/1-A
Matrix: Water
Analysis Batch: 321723

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318345

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05328	U	0.0544	0.0546	1.00	0.0838	pCi/L	07/20/17 08:43	08/11/17 06:05	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*07/20/17 08:43*	*08/11/17 06:05*	*1*

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

Lab Sample ID: LCS 160-318345/2-A
Matrix: Water
Analysis Batch: 321723

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318345

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	11.24		1.16	1.00	0.0896	pCi/L	99	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*89.4*		*40 - 110*

Lab Sample ID: LCSD 160-318345/3-A
Matrix: Water
Analysis Batch: 321723

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318345

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.49		1.09	1.00	0.0963	pCi/L	92	68 - 137	0.33	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-318360/1-A
Matrix: Water
Analysis Batch: 319921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318360

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.6442		0.246	0.253	1.00	0.335	pCi/L	07/20/17 09:35	07/31/17 10:25	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.0*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:25*	*1*
Y Carrier	*84.1*		*40 - 110*	*07/20/17 09:35*	*07/31/17 10:25*	*1*

Lab Sample ID: LCS 160-318360/2-A
Matrix: Water
Analysis Batch: 319921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318360

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.1	15.36		1.64	1.00	0.342	pCi/L	117	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*89.4*		*40 - 110*
Y Carrier	*84.1*		*40 - 110*

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

Lab Sample ID: LCSD 160-318360/3-A
Matrix: Water
Analysis Batch: 319921

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318360

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			13.1	15.55		1.66	1.00	0.455	pCi/L	119	56 - 140	0.06	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*92.0*		*40 - 110*
Y Carrier	*84.1*		*40 - 110*

Metals

Prep Batch: 287666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total Recoverable	Water	3005A	
280-99201-2	PNMW-2B	Total Recoverable	Water	3005A	
280-99201-3	PNMW-13	Total Recoverable	Water	3005A	
280-99201-4	PNMW-14	Total Recoverable	Water	3005A	
280-99201-5	PNMW-15	Total Recoverable	Water	3005A	
280-99201-6	PNMW-16	Total Recoverable	Water	3005A	
280-99201-8	PNMW-2BDUP	Total Recoverable	Water	3005A	
280-99201-9	PNMW-14EB	Total Recoverable	Water	3005A	
MB 240-287666/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-287666/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-287666/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-99201-1 MS	PNMW-1B	Total Recoverable	Water	3005A	
280-99201-1 MS	PNMW-1B	Total Recoverable	Water	3005A	
280-99201-1 MSD	PNMW-1B	Total Recoverable	Water	3005A	
280-99201-1 MSD	PNMW-1B	Total Recoverable	Water	3005A	

Analysis Batch: 288058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total Recoverable	Water	6010C	287666
280-99201-2	PNMW-2B	Total Recoverable	Water	6010C	287666
280-99201-3	PNMW-13	Total Recoverable	Water	6010C	287666
280-99201-4	PNMW-14	Total Recoverable	Water	6010C	287666
280-99201-5	PNMW-15	Total Recoverable	Water	6010C	287666
280-99201-6	PNMW-16	Total Recoverable	Water	6010C	287666
280-99201-8	PNMW-2BDUP	Total Recoverable	Water	6010C	287666
280-99201-9	PNMW-14EB	Total Recoverable	Water	6010C	287666
MB 240-287666/1-A	Method Blank	Total Recoverable	Water	6010C	287666
LCS 240-287666/2-A	Lab Control Sample	Total Recoverable	Water	6010C	287666
280-99201-1 MS	PNMW-1B	Total Recoverable	Water	6010C	287666
280-99201-1 MSD	PNMW-1B	Total Recoverable	Water	6010C	287666

Analysis Batch: 288778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total Recoverable	Water	6020A	287666
280-99201-2	PNMW-2B	Total Recoverable	Water	6020A	287666
280-99201-3	PNMW-13	Total Recoverable	Water	6020A	287666
280-99201-4	PNMW-14	Total Recoverable	Water	6020A	287666
280-99201-5	PNMW-15	Total Recoverable	Water	6020A	287666
280-99201-6	PNMW-16	Total Recoverable	Water	6020A	287666
280-99201-8	PNMW-2BDUP	Total Recoverable	Water	6020A	287666
280-99201-9	PNMW-14EB	Total Recoverable	Water	6020A	287666
MB 240-287666/1-A	Method Blank	Total Recoverable	Water	6020A	287666
LCS 240-287666/3-A	Lab Control Sample	Total Recoverable	Water	6020A	287666
280-99201-1 MS	PNMW-1B	Total Recoverable	Water	6020A	287666
280-99201-1 MSD	PNMW-1B	Total Recoverable	Water	6020A	287666

Prep Batch: 382228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	7470A	
280-99201-2	PNMW-2B	Total/NA	Water	7470A	
280-99201-3	PNMW-13	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 382228 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-4	PNMW-14	Total/NA	Water	7470A	
280-99201-5	PNMW-15	Total/NA	Water	7470A	
280-99201-6	PNMW-16	Total/NA	Water	7470A	
MB 280-382228/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-382228/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-99201-1 MS	PNMW-1B	Total/NA	Water	7470A	
280-99201-1 MSD	PNMW-1B	Total/NA	Water	7470A	

Prep Batch: 382229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-8	PNMW-2BDUP	Total/NA	Water	7470A	
280-99201-9	PNMW-14EB	Total/NA	Water	7470A	

Analysis Batch: 382363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	7470A	382228
280-99201-2	PNMW-2B	Total/NA	Water	7470A	382228
280-99201-3	PNMW-13	Total/NA	Water	7470A	382228
280-99201-4	PNMW-14	Total/NA	Water	7470A	382228
280-99201-5	PNMW-15	Total/NA	Water	7470A	382228
280-99201-6	PNMW-16	Total/NA	Water	7470A	382228
280-99201-8	PNMW-2BDUP	Total/NA	Water	7470A	382229
280-99201-9	PNMW-14EB	Total/NA	Water	7470A	382229
MB 280-382228/1-A	Method Blank	Total/NA	Water	7470A	382228
LCS 280-382228/2-A	Lab Control Sample	Total/NA	Water	7470A	382228
280-99201-1 MS	PNMW-1B	Total/NA	Water	7470A	382228
280-99201-1 MSD	PNMW-1B	Total/NA	Water	7470A	382228

General Chemistry

Analysis Batch: 380872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-99201-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-99201-3	PNMW-13	Total/NA	Water	SM 2540D	
280-99201-4	PNMW-14	Total/NA	Water	SM 2540D	
280-99201-5	PNMW-15	Total/NA	Water	SM 2540D	
280-99201-6	PNMW-16	Total/NA	Water	SM 2540D	
280-99201-8	PNMW-2BDUP	Total/NA	Water	SM 2540D	
280-99201-9	PNMW-14EB	Total/NA	Water	SM 2540D	
MB 280-380872/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-380872/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-380872/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 380957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	9040B	
280-99201-2	PNMW-2B	Total/NA	Water	9040B	
280-99201-3	PNMW-13	Total/NA	Water	9040B	
280-99201-4	PNMW-14	Total/NA	Water	9040B	

General Chemistry (Continued)

Analysis Batch: 380957 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-5	PNMW-15	Total/NA	Water	9040B	
280-99201-6	PNMW-16	Total/NA	Water	9040B	
280-99201-8	PNMW-2BDUP	Total/NA	Water	9040B	
280-99201-9	PNMW-14EB	Total/NA	Water	9040B	
LCS 280-380957/29	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-380957/4	Lab Control Sample	Total/NA	Water	9040B	
280-99201-4 DU	PNMW-14	Total/NA	Water	9040B	

Analysis Batch: 381059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-99201-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-99201-3	PNMW-13	Total/NA	Water	SM 2540C	
280-99201-4	PNMW-14	Total/NA	Water	SM 2540C	
280-99201-5	PNMW-15	Total/NA	Water	SM 2540C	
280-99201-6	PNMW-16	Total/NA	Water	SM 2540C	
280-99201-8	PNMW-2BDUP	Total/NA	Water	SM 2540C	
280-99201-9	PNMW-14EB	Total/NA	Water	SM 2540C	
MB 280-381059/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-381059/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 381074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	9056A	
280-99201-2	PNMW-2B	Total/NA	Water	9056A	
280-99201-3	PNMW-13	Total/NA	Water	9056A	
280-99201-4	PNMW-14	Total/NA	Water	9056A	
280-99201-5	PNMW-15	Total/NA	Water	9056A	
280-99201-6	PNMW-16	Total/NA	Water	9056A	
280-99201-8	PNMW-2BDUP	Total/NA	Water	9056A	
280-99201-9	PNMW-14EB	Total/NA	Water	9056A	
MB 280-381074/6	Method Blank	Total/NA	Water	9056A	
LCS 280-381074/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-381074/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-381074/3	Lab Control Sample	Total/NA	Water	9056A	
280-99201-4 MS	PNMW-14	Total/NA	Water	9056A	
280-99201-4 MSD	PNMW-14	Total/NA	Water	9056A	
280-99201-4 DU	PNMW-14	Total/NA	Water	9056A	

Analysis Batch: 381125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	9056A	
280-99201-5	PNMW-15	Total/NA	Water	9056A	
280-99201-6	PNMW-16	Total/NA	Water	9056A	
MB 280-381125/6	Method Blank	Total/NA	Water	9056A	
LCS 280-381125/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-381125/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-381125/3	Lab Control Sample	Total/NA	Water	9056A	

Rad

Prep Batch: 318345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-99201-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-99201-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-99201-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-99201-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-99201-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-99201-8	PNMW-2BDUP	Total/NA	Water	PrecSep-21	
280-99201-9	PNMW-14EB	Total/NA	Water	PrecSep-21	
MB 160-318345/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-318345/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-318345/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 318360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-99201-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-99201-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-99201-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-99201-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-99201-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-99201-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-99201-8	PNMW-2BDUP	Total/NA	Water	PrecSep_0	
280-99201-9	PNMW-14EB	Total/NA	Water	PrecSep_0	
MB 160-318360/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-318360/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-318360/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-1B

Date Collected: 07/11/17 14:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 15:10	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 11:01	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 15:57	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 09:41	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	381125	07/18/17 15:52	AFB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/17/17 23:07	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.94 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.94 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 10:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 07/11/17 09:20
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 15:32	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:29	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:04	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 10:01	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/17/17 23:25	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.60 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.60 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 10:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Client Sample ID: PNMW-13

Date Collected: 07/10/17 16:15
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 15:37	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:33	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:11	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 10:31	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/17/17 23:43	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.64 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.64 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 10:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Client Sample ID: PNMW-14

Date Collected: 07/10/17 14:00
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 15:42	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:38	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:13	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 09:31	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/18/17 00:36	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.69 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.69 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 10:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-15

Date Collected: 07/10/17 19:30
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-5

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	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 15:56	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:42	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:15	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 10:16	A1D	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	381125	07/18/17 16:08	AFB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/18/17 01:47	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	120 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			750.30 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			750.30 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 11:26	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Client Sample ID: PNMW-16

Date Collected: 07/11/17 11:50
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-6

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	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 16:00	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:46	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382228	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:17	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 09:51	A1D	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	381125	07/18/17 16:25	AFB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/18/17 02:04	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.84 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.84 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319921	07/31/17 10:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-99201-1

Client Sample ID: PNMW-2BDUP

Date Collected: 07/11/17 09:40
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 16:10	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:55	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382229	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:26	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 09:09	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/18/17 02:40	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.53 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.53 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319922	07/31/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Client Sample ID: PNMW-14EB

Date Collected: 07/10/17 14:10
Date Received: 07/13/17 12:00

Lab Sample ID: 280-99201-9

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	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			288058	07/20/17 16:14	RKT	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	287666	07/18/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			288778	07/26/17 23:59	AS1	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	382229	07/27/17 11:42	CDH	TAL DEN
Total/NA	Analysis	7470A		1			382363	07/27/17 16:28	CDH	TAL DEN
Total/NA	Analysis	9040B		1			380957	07/15/17 09:13	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	381074	07/18/17 02:57	AFB	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	381059	07/17/17 15:55	SVC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	380872	07/14/17 15:44	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.67 mL	1.0 g	318345	07/20/17 08:43	LDE	TAL SL
Total/NA	Analysis	9315		1			321723	08/11/17 06:08	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.67 mL	1.0 g	318360	07/20/17 09:35	LDE	TAL SL
Total/NA	Analysis	9320		1			319922	07/31/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			321857	08/11/17 16:30	RTM	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-99201-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-99201-1

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: N. Hanrahan	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: ~~Anna Lundin~~ Matt Rohr	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 2
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: ~~720-633-2380(Tel)~~ (303) 764-1537	PO #: DEN-001			
Email: ~~anna.lundin@hdrinc.com~~ Matthew.Rohr@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

280-99201 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	7/11/17	1430	G	Water		N	X	X	X	X	X	7	
PNMW-2B	7/11/17	0920	G	Water		N	X	X	X	X	X	7	
PNMW-13	7/10/17	1615	G	Water		N	X	X	X	X	X	7	
PNMW-14	7/10/17	1400	G	Water		N	X	X	X	X	X	7	
PNMW-15	7/10/17	1930	G	Water		N	X	X	X	X	X	7	
PNMW-16	7/11/17	1150	G	Water		N	X	X	X	X	X	7	
PNMW-17	7/11/17	1730	G	Water		N	X	X	X	X	X	7	
~~Field Duplicate~~ PNMW-2BDUP	7/11/17	0940	G	Water		N	X	X	X	X	X	7	
~~Equipment Blank~~ PNMW-14EB	7/10/17	1410	G	Water		N	X	X	X	X	X	7	

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	7/13/17 1200	HDR		7/13/17 1200	TAD
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: 3.1, 3.9, 5.9, 2.1, 4.3 IR#20.0 Transfer RP 7-13-17

America Denver
5 Yarrow Street
rvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: N. Hanrahan	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: ~~Anna Lundin~~ Matt Rohr	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 2 of 2
Company: HDR Inc				Job #:
Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:			
City: Englewood	TAT Requested (days): Standard			
State, Zip: CO, 80112				
Phone: ~~720-689-2380(Tel)~~ (303) 764-1537	PO #: DEN-001			
Email: ~~anna.lundin@hdrinc.com~~ Matthew.Rohr@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378			
Site: Colorado	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226; 9320_Ra228	dissolved Hg	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D			
~~PNMW-1B~~ PNMW-21	7/11/17	1925	G	Water		N	X	X	X	X	X	X	7	
~~PNMW-2B~~ PNMW-22	7/12/17	1140	G	Water		N	X	X	X	X	X	X	7	
~~PNMW-13~~ PNMW-23	7/12/17	1415	G	Water		N	X	X	X	X	X		7	
~~PNMW-14~~				Water		N								
~~PNMW-15~~				Water		N								
~~PNMW-16~~				Water		N								
~~PNMW-17~~				Water		N								
~~Field Duplicate~~				Water		N								
~~Equipment Blank~~				Water		N								

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	7/13/17 1200	HDR		7/13/17 1200	TAL
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:

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

Chain of Custody Record

280-99201 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephai	COC No: 280-405909.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado
			Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA	Job #: 280-99201-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 8/11/2017		
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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-99201-1)	7/11/17	14:30 Mountain		Water			X	X	X	2	
PNMW-2B (280-99201-2)	7/11/17	09:20 Mountain		Water			X	X	X	2	
PNMW-13 (280-99201-3)	7/10/17	16:15 Mountain		Water			X	X	X	2	
PNMW-14 (280-99201-4)	7/10/17	14:00 Mountain		Water			X	X	X	2	
PNMW-15 (280-99201-5)	7/10/17	19:30 Mountain		Water			X	X	X	2	
PNMW-16 (280-99201-6)	7/11/17	11:50 Mountain		Water			X	X	X	2	
PNMW-17 (280-99201-7)	7/11/17	17:30 Mountain		Water			X	X	X	2	
PNMW-2BDUP (280-99201-8)	7/11/17	09:40 Mountain		Water			X	X	X	2	
PNMW-14EB (280-99201-9)	7/10/17	14:10 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: 7/14/17 1400	Company	Received by:	Date/Time: 7/15/17 0900	Company TASL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-405909.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-99201-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 8/11/2017			
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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-21 (280-99201-10)	7/11/17	19:25 Mountain		Water			X	X	X	2	
PNMW-22 (280-99201-11)	7/12/17	11:40 Mountain		Water			X	X	X	2	
PNMW-23 (280-99201-12)	7/12/17	14:15 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/11/17 1400			7/15/17 0900	TAS+L
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-405910.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-99201-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/8/2017			
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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							SS4
PNMW-1B (280-99201-1)	7/11/17	14:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-99201-2)	7/11/17	09:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-99201-3)	7/10/17	16:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-99201-4)	7/10/17	14:00 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-99201-5)	7/10/17	19:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-99201-6)	7/11/17	11:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-99201-7)	7/11/17	17:30 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2BDUP (280-99201-8)	7/11/17	09:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-14EB (280-99201-9)	7/10/17	14:10 Mountain		Water			X	X	1	, Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-405910.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-99201-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 8/8/2017			
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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-21 (280-99201-10)	7/11/17	19:25 Mountain		Water			X	X	1	Use Collision Cell
PNMW-22 (280-99201-11)	7/12/17	11:40 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-23 (280-99201-12)	7/12/17	14:15 Mountain		Water			X	X	1	Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
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:

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

Canton Facility

Client TA Denver Site Name_____ Cooler unpacked by:

Cooler Received on 7/15/12 Opened on 7/15/12

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

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

TestAmerica Cooler # _____ 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-8 (CF **-0.4** °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN #36 (CF **+0**°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
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 11-15 have been checked at the originating laboratory.
11. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC697954**
12. Were VOAs on the COC? Yes No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

Ref: SOP NC-SC-0005, Sample Receiving

\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-052317 Cooler Receipt Form.doc djl

TestAmerica Multiple Cooler Receipt Form/Narrative **Login # :**_____
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
Client ↓	3 ↓	14.2	14.2	Ice ↓
	2	17.6	17.6	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-99201-1

Login Number: 99201
List Number: 1
Creator: Pottruff, Reed W

List Source: 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: 280-99201-1

Login Number: 99201
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 07/15/17 01:30 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.	N/A	
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	20.0,20.0,20.0,20.0
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.	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

TestAmerica Job ID: 280-99201-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-99201-1	PNMW-1B	90.3
280-99201-2	PNMW-2B	91.7
280-99201-3	PNMW-13	82.3
280-99201-4	PNMW-14	84.4
280-99201-5	PNMW-15	85.5
280-99201-6	PNMW-16	87.9
280-99201-8	PNMW-2BDUP	91.2
280-99201-9	PNMW-14EB	92.6
LCS 160-318345/2-A	Lab Control Sample	89.4
LCSD 160-318345/3-A	Lab Control Sample Dup	92.0
MB 160-318345/1-A	Method Blank	92.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-99201-1	PNMW-1B	90.3	57.2
280-99201-2	PNMW-2B	91.7	77.8
280-99201-3	PNMW-13	82.3	79.3
280-99201-4	PNMW-14	84.4	61.3
280-99201-5	PNMW-15	85.5	83.4
280-99201-6	PNMW-16	87.9	82.6
280-99201-8	PNMW-2BDUP	91.2	64.7
280-99201-9	PNMW-14EB	92.6	77.4
LCS 160-318360/2-A	Lab Control Sample	89.4	84.1
LCSD 160-318360/3-A	Lab Control Sample Dup	92.0	84.1
MB 160-318360/1-A	Method Blank	92.0	84.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-100629-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 12:59:58 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

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Visit us at: www.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.

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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
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

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

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: 280-100629-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-100629-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 8/25/2017 at 1:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.5º C, 0.7º C, 2.7º C and 3.5º C.

TOTAL RECOVERABLE METALS
Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/30/2017 and analyzed on 08/31/2017.

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 (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 08/30/2017 and analyzed on 09/08/2017.

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

TOTAL MERCURY
Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 08/30/2017.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 08/28/2017 and 08/30/2017.

Job ID: 280-100629-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

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

TOTAL SUSPENDED SOLIDS

Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/25/2017.

The following sample was diluted due to slow filtration and high Total Suspended Solids: PNMW-14 (280-100629-4). Elevated reporting limits (RLs) are provided.

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

CORROSIVITY (PH)

Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 08/29/2017 and 08/31/2017.

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

ANIONS (28 DAYS)

Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 08/26/2017.

Sulfate was detected in method blank MB 280-385704/6 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.

Chloride and Sulfate were detected in method blank MB 280-385706/6 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have 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.

Samples PNMW-1B (280-100629-1)[5X], PNMW-15 (280-100629-5)[5X], and PNMW-16 (280-100629-6)[10X] 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-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 08/30/2017 and analyzed on 09/21/2017.

Insufficient sample volume was available to perform a sample duplicate (DU) associated with batch 160-325106.

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

RADIUM-228

Samples PNMW-1B (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/30/2017 and analyzed on 09/10/2017.

The following sample was reduced due to heavy amounts of sediment making sample murky and brown: PNMW-14 (280-100629-4).

The radium-228 detection goal was not met for the following sample due to the reduced sample volume attributed to the presence of

Job ID: 280-100629-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

matrix interferences: PNMW-14 (280-100629-4). Analytical results are reported with the detection limit achieved.

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 (280-100629-1), PNMW-2B (280-100629-2), PNMW-13 (280-100629-3), PNMW-14 (280-100629-4), PNMW-15 (280-100629-5), PNMW-16 (280-100629-6), PNMW-2BD (280-100629-8), and PNMW-1BEB (280-100629-9) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 09/21/2017.

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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-100629-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0024	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	130		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0041		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0052	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.017		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.072		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	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	79	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.92		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	320	B	25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	990		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: PNMW-2B — Lab Sample ID: 280-100629-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.051	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.17		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	90		1.0	0.58	mg/L	1		6020A	Total Recoverable
Chromium	0.0027		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0031	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	0.033		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	15	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.50		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	27	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	450		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: PNMW-13 — Lab Sample ID: 280-100629-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.20	0.0081	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-13 (Continued) — Lab Sample ID: 280-100629-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0015	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.10		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	45		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0014		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.013		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0066	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.0027		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0011	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.055		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	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.5	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.3		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	37	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	430		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	140		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-100629-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.099	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Antimony	0.0011	J	0.0020	0.00057	mg/L	1		6020A	Total Recoverable
Arsenic	0.014		0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.40		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Beryllium	0.0021		0.0010	0.00031	mg/L	1		6020A	Total Recoverable
Calcium	120		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cadmium	0.00028	J	0.0010	0.00021	mg/L	1		6020A	Total Recoverable
Cobalt	0.020		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.19		0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.024		0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lead	0.031		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0043	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Thallium	0.00052	J	0.0010	0.00020	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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-14 (Continued) — Lab Sample ID: 280-100629-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.068		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.2	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	2.0	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	290		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1000		20	5.5	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-100629-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.39		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.0020	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	170		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0019		0.0010	0.00019	mg/L	1		6020A	Total Recoverable
Chromium	0.0044		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	0.0014		0.0010	0.00045	mg/L	1		6020A	Total Recoverable
Selenium	0.0083		0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.11		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	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.5	B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.28	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	890	B	25	1.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	75		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-100629-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.41		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Arsenic	0.00085	J	0.0050	0.00075	mg/L	1		6020A	Total Recoverable
Barium	0.026		0.0050	0.0022	mg/L	1		6020A	Total Recoverable
Calcium	230		1.0	0.58	mg/L	1		6020A	Total Recoverable
Cobalt	0.0027		0.0010	0.00019	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: PNMW-16 (Continued) — Lab Sample ID: 280-100629-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0015	J	0.0020	0.00098	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0018	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Lithium	0.14		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	2.2	J B	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.25	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100	B	50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	18		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-2BD — Lab Sample ID: 280-100629-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.049	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Barium	0.19		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	0.0031	J	0.010	0.0011	mg/L	1		6020A	Total Recoverable
Selenium	0.0021	J	0.0050	0.00089	mg/L	1		6020A	Total Recoverable
Lithium	0.031		0.0080	0.0017	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	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	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.40	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	540		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: PNMW-1BEB — Lab Sample ID: 280-100629-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	4.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	0.46	J B	5.0	0.23	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-100629-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL DEN
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

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-100629-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-100629-1	PNMW-1B	Water	08/25/17 09:50	08/25/17 13:55
280-100629-2	PNMW-2B	Water	08/25/17 11:45	08/25/17 13:55
280-100629-3	PNMW-13	Water	08/24/17 16:15	08/25/17 13:55
280-100629-4	PNMW-14	Water	08/24/17 16:50	08/25/17 13:55
280-100629-5	PNMW-15	Water	08/24/17 15:40	08/25/17 13:55
280-100629-6	PNMW-16	Water	08/24/17 11:20	08/25/17 13:55
280-100629-8	PNMW-2BD	Water	08/25/17 11:45	08/25/17 13:55
280-100629-9	PNMW-1BEB	Water	08/25/17 10:10	08/25/17 13:55

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

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 16:51	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.051	J	0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 16:56	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:00	1

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.099	J	0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:05	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.39		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:10	1

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.41		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:14	1

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.049	J	0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:24	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 17:38	1

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

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:13	1

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

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0024**	**J**	0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:13	1
Barium	**0.041**		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:13	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:13	1
Calcium	**130**		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:13	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:13	1
Cobalt	ND		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:13	1
Chromium	**0.0041**		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:13	1
Molybdenum	**0.0052**	**J**	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:13	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:13	1
Selenium	**0.017**		0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:13	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:13	1
Lithium	**0.072**		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:13	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:27	1
Arsenic	ND		0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:27	1
Barium	**0.17**		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:27	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:27	1
Calcium	**90**		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:27	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:27	1
Cobalt	ND		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:27	1
Chromium	**0.0027**		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:27	1
Molybdenum	**0.0031**	**J**	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:27	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:27	1
Selenium	**0.0023**	**J**	0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:27	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:27	1
Lithium	**0.033**		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:27	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:31	1
Arsenic	**0.0015**	**J**	0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:31	1
Barium	**0.10**		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:31	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:31	1
Calcium	**45**		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:31	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:31	1
Cobalt	**0.0014**		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:31	1
Chromium	**0.013**		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:31	1
Molybdenum	**0.0066**	**J**	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:31	1
Lead	**0.0027**		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:31	1
Selenium	**0.0011**	**J**	0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:31	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:31	1
Lithium	**0.055**		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:31	1

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

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0011	J	0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:36	1
Arsenic	0.014		0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:36	1
Barium	0.40		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:36	1
Beryllium	0.0021		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:36	1
Calcium	120		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:36	1
Cadmium	0.00028	J	0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:36	1
Cobalt	0.020		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:36	1
Chromium	0.19		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:36	1
Molybdenum	0.024		0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:36	1
Lead	0.031		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:36	1
Selenium	0.0043	J	0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:36	1
Thallium	0.00052	J	0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:36	1
Lithium	0.068		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:36	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:40	1
Arsenic	0.0020	J	0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:40	1
Barium	0.043		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:40	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:40	1
Calcium	170		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:40	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:40	1
Cobalt	0.0019		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:40	1
Chromium	0.0044		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:40	1
Molybdenum	0.0016	J	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:40	1
Lead	0.0014		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:40	1
Selenium	0.0083		0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:40	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:40	1
Lithium	0.11		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:40	1

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:45	1
Arsenic	0.00085	J	0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:45	1
Barium	0.026		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:45	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:45	1
Calcium	230		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:45	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:45	1
Cobalt	0.0027		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:45	1
Chromium	0.0015	J	0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:45	1
Molybdenum	0.0018	J	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:45	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:45	1
Selenium	ND		0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:45	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:45	1
Lithium	0.14		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:45	1

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

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:54	1
Arsenic	ND		0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:54	1
Barium	**0.19**		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:54	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:54	1
Calcium	**98**		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:54	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:54	1
Cobalt	ND		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:54	1
Chromium	**0.0025**		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:54	1
Molybdenum	**0.0031**	**J**	0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:54	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:54	1
Selenium	**0.0021**	**J**	0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:54	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:54	1
Lithium	**0.031**		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:54	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 21:58	1
Arsenic	ND		0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 21:58	1
Barium	ND		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 21:58	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 21:58	1
Calcium	ND		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 21:58	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 21:58	1
Cobalt	ND		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 21:58	1
Chromium	ND		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 21:58	1
Molybdenum	ND		0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 21:58	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 21:58	1
Selenium	ND		0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 21:58	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 21:58	1
Lithium	ND		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 21:58	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:30	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:36	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:39	1

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:41	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:43	1

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:45	1

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:50	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:52	1

General Chemistry

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			08/29/17 20:36	1
Temperature	23.2	HF	1.0	1.0	Degrees C			08/29/17 20:36	1
Chloride	79	B	3.0	0.25	mg/L			08/26/17 10:41	1
Fluoride	0.92		0.50	0.060	mg/L			08/26/17 10:41	1
Sulfate	320	B	25	1.2	mg/L			08/26/17 13:48	5
Total Dissolved Solids (TDS)	990		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55
Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			08/29/17 20:31	1

General Chemistry (Continued)

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	23.1	HF	1.0	1.0	Degrees C			08/29/17 20:31	1
Chloride	15	B	3.0	0.25	mg/L			08/26/17 10:59	1
Fluoride	0.50		0.50	0.060	mg/L			08/26/17 10:59	1
Sulfate	27	B	5.0	0.23	mg/L			08/26/17 10:59	1
Total Dissolved Solids (TDS)	450		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			08/29/17 20:26	1
Temperature	23.0	HF	1.0	1.0	Degrees C			08/29/17 20:26	1
Chloride	1.5	J B	3.0	0.25	mg/L			08/26/17 11:17	1
Fluoride	1.3		0.50	0.060	mg/L			08/26/17 11:17	1
Sulfate	37	B	5.0	0.23	mg/L			08/26/17 11:17	1
Total Dissolved Solids (TDS)	430		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	140		4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4
Matrix: Water

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			08/29/17 21:02	1
Temperature	23.1	HF	1.0	1.0	Degrees C			08/29/17 21:02	1
Chloride	2.0	J B	3.0	0.25	mg/L			08/26/17 11:35	1
Fluoride	1.1		0.50	0.060	mg/L			08/26/17 11:35	1
Sulfate	25	B	5.0	0.23	mg/L			08/26/17 11:35	1
Total Dissolved Solids (TDS)	290		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	1000		20	5.5	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			08/29/17 20:57	1
Temperature	23.0	HF	1.0	1.0	Degrees C			08/29/17 20:57	1
Chloride	3.5	B	3.0	0.25	mg/L			08/26/17 11:53	1
Fluoride	0.28	J	0.50	0.060	mg/L			08/26/17 11:53	1
Sulfate	890	B	25	1.2	mg/L			08/26/17 15:35	5
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	75		4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			08/29/17 20:41	1
Temperature	23.1	HF	1.0	1.0	Degrees C			08/29/17 20:41	1
Chloride	2.2	J B	3.0	0.25	mg/L			08/26/17 12:10	1

General Chemistry (Continued)

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.25**	**J**	0.50	0.060	mg/L			08/26/17 12:10	1
Sulfate	**1100**	**B**	50	2.3	mg/L			08/26/17 15:53	10
Total Dissolved Solids (TDS)	**1900**		20	9.4	mg/L			08/28/17 10:57	1
Total Suspended Solids	**18**		4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**8.1**	**HF**	0.1	0.1	SU			08/29/17 21:14	1
Temperature	**23.2**	**HF**	1.0	1.0	Degrees C			08/29/17 21:14	1
Chloride	**14**		3.0	0.25	mg/L			08/26/17 10:57	1
Fluoride	**0.40**	**J**	0.50	0.060	mg/L			08/26/17 10:57	1
Sulfate	**25**	**B**	5.0	0.23	mg/L			08/26/17 10:57	1
Total Dissolved Solids (TDS)	**540**		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	**1.2**	**J**	4.0	1.1	mg/L			08/25/17 16:13	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**4.9**	**HF**	0.1	0.1	SU			08/31/17 15:20	1
Temperature	**22.2**	**HF**	1.0	1.0	Degrees C			08/31/17 15:20	1
Chloride	ND		3.0	0.25	mg/L			08/26/17 11:14	1
Fluoride	ND		0.50	0.060	mg/L			08/26/17 11:14	1
Sulfate	**0.46**	**J B**	5.0	0.23	mg/L			08/26/17 11:14	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/28/17 10:57	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/25/17 16:13	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.198**		0.0837	0.0856	1.00	0.0807	pCi/L	08/30/17 10:52	09/21/17 08:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*08/30/17 10:52*	*09/21/17 08:33*	*1*

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.359**		0.102	0.107	1.00	0.0595	pCi/L	08/30/17 10:52	09/21/17 08:34	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110	08/30/17 10:52	09/21/17 08:34	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.327		0.109	0.113	1.00	0.0848	pCi/L	08/30/17 10:52	09/21/17 08:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.9		40 - 110	08/30/17 10:52	09/21/17 08:35	1

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.963		0.268	0.281	1.00	0.178	pCi/L	08/30/17 10:52	09/21/17 08:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.6		40 - 110	08/30/17 10:52	09/21/17 08:35	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.339		0.110	0.114	1.00	0.0954	pCi/L	08/30/17 10:52	09/21/17 08:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		40 - 110	08/30/17 10:52	09/21/17 08:35	1

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.378		0.111	0.116	1.00	0.0843	pCi/L	08/30/17 10:52	09/21/17 08:35	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		40 - 110	08/30/17 10:52	09/21/17 08:35	1

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.381		0.109	0.114	1.00	0.0826	pCi/L	08/30/17 10:52	09/21/17 08:36	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110	08/30/17 10:52	09/21/17 08:36	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00556	U	0.0384	0.0384	1.00	0.0806	pCi/L	08/30/17 10:52	09/21/17 08:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110	08/30/17 10:52	09/21/17 08:36	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.486**		0.256	0.260	1.00	0.381	pCi/L	08/30/17 12:11	09/10/17 20:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110	08/30/17 12:11	09/10/17 20:07	1
Y Carrier	80.4		40 - 110	08/30/17 12:11	09/10/17 20:07	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.271	U	0.211	0.213	1.00	0.332	pCi/L	08/30/17 12:11	09/10/17 20:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110	08/30/17 12:11	09/10/17 20:07	1
Y Carrier	83.4		40 - 110	08/30/17 12:11	09/10/17 20:07	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.621**		0.287	0.293	1.00	0.410	pCi/L	08/30/17 12:11	09/10/17 20:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.9		40 - 110	08/30/17 12:11	09/10/17 20:07	1
Y Carrier	80.7		40 - 110	08/30/17 12:11	09/10/17 20:07	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.17	G	0.667	0.675	1.00	1.01	pCi/L	08/30/17 12:11	09/10/17 20:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:07*	*1*
Y Carrier	*83.7*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:07*	*1*

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.674		0.258	0.265	1.00	0.351	pCi/L	08/30/17 12:11	09/10/17 20:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.8*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:09*	*1*
Y Carrier	*83.0*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:09*	*1*

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.575		0.249	0.254	1.00	0.353	pCi/L	08/30/17 12:11	09/10/17 20:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:09*	*1*
Y Carrier	*84.1*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:09*	*1*

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.822		0.246	0.257	1.00	0.304	pCi/L	08/30/17 12:11	09/10/17 20:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.9*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:10*	*1*
Y Carrier	*82.2*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:10*	*1*

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.102	U	0.187	0.187	1.00	0.319	pCi/L	08/30/17 12:11	09/10/17 20:10	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110	08/30/17 12:11	09/10/17 20:10	1
Y Carrier	88.2		40 - 110	08/30/17 12:11	09/10/17 20:10	1

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

Client Sample ID: PNMW-1B
Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.684		0.269	0.273	5.00	0.381	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-2B
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.630		0.235	0.238	5.00	0.332	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-13
Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.948		0.307	0.314	5.00	0.410	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-14
Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.13		0.718	0.732	5.00	1.01	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-15
Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.01		0.280	0.288	5.00	0.351	pCi/L		09/21/17 17:30	1

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

Client Sample ID: PNMW-16
Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.953**		0.273	0.280	5.00	0.353	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-2BD
Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.20**		0.269	0.281	5.00	0.304	pCi/L		09/21/17 17:30	1

Client Sample ID: PNMW-1BEB
Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.107	U	0.191	0.191	5.00	0.319	pCi/L		09/21/17 17:30	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-293077/1-A
Matrix: Water
Analysis Batch: 293303

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 293077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		08/30/17 14:00	08/31/17 15:43	1

Lab Sample ID: LCS 240-293077/2-A
Matrix: Water
Analysis Batch: 293303

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 293077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.10		mg/L		110	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-293077/1-A
Matrix: Water
Analysis Batch: 294233

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 293077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00057	mg/L		08/30/17 14:00	09/08/17 20:36	1
Arsenic	ND		0.0050	0.00075	mg/L		08/30/17 14:00	09/08/17 20:36	1
Barium	ND		0.0050	0.0022	mg/L		08/30/17 14:00	09/08/17 20:36	1
Beryllium	ND		0.0010	0.00031	mg/L		08/30/17 14:00	09/08/17 20:36	1
Calcium	ND		1.0	0.58	mg/L		08/30/17 14:00	09/08/17 20:36	1
Cadmium	ND		0.0010	0.00021	mg/L		08/30/17 14:00	09/08/17 20:36	1
Cobalt	ND		0.0010	0.00019	mg/L		08/30/17 14:00	09/08/17 20:36	1
Chromium	ND		0.0020	0.00098	mg/L		08/30/17 14:00	09/08/17 20:36	1
Molybdenum	ND		0.010	0.0011	mg/L		08/30/17 14:00	09/08/17 20:36	1
Lead	ND		0.0010	0.00045	mg/L		08/30/17 14:00	09/08/17 20:36	1
Selenium	ND		0.0050	0.00089	mg/L		08/30/17 14:00	09/08/17 20:36	1
Thallium	ND		0.0010	0.00020	mg/L		08/30/17 14:00	09/08/17 20:36	1
Lithium	ND		0.0080	0.0017	mg/L		08/30/17 14:00	09/08/17 20:36	1

Lab Sample ID: LCS 240-293077/23-A
Matrix: Water
Analysis Batch: 294233

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 293077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.100	0.0989		mg/L		99	80 - 120
Arsenic	1.00	0.997		mg/L		100	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	1.00	1.06		mg/L		106	80 - 120
Calcium	10.0	11.0		mg/L		110	80 - 120
Cadmium	1.00	1.05		mg/L		105	80 - 120
Cobalt	1.00	1.05		mg/L		105	80 - 120
Chromium	1.00	1.03		mg/L		103	80 - 120
Molybdenum	0.100	0.0986		mg/L		99	80 - 120
Lead	1.00	1.07		mg/L		107	80 - 120
Selenium	1.00	1.01		mg/L		101	80 - 120
Thallium	0.250	0.261		mg/L		104	80 - 120
Lithium	0.100	0.0939		mg/L		94	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-386095/1-A
Matrix: Water
Analysis Batch: 386245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386095

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000027	mg/L		08/30/17 11:46	08/30/17 15:10	1

Lab Sample ID: LCS 280-386095/2-A
Matrix: Water
Analysis Batch: 386245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386095

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00492		mg/L		98	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-386082/29
Matrix: Water
Analysis Batch: 386082

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 280-386404/4
Matrix: Water
Analysis Batch: 386404

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 280-385706/6
Matrix: Water
Analysis Batch: 385706

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.390	J	3.0	0.25	mg/L			08/26/17 10:24	1
Fluoride	ND		0.50	0.060	mg/L			08/26/17 10:24	1
Sulfate	0.316	J	5.0	0.23	mg/L			08/26/17 10:24	1

Lab Sample ID: LCS 280-385706/4
Matrix: Water
Analysis Batch: 385706

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	99.4		mg/L		99	90 - 110
Fluoride	5.00	5.10		mg/L		102	90 - 110
Sulfate	100	98.7		mg/L		99	90 - 110

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

Lab Sample ID: LCSD 280-385706/5
Matrix: Water
Analysis Batch: 385706

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	100		mg/L		100	90 - 110	1	10
Fluoride	5.00	5.14		mg/L		103	90 - 110	1	10
Sulfate	100	99.3		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-385706/3
Matrix: Water
Analysis Batch: 385706

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.41	J	mg/L		96	50 - 150
Fluoride	0.200	0.166	J	mg/L		83	50 - 150
Sulfate	2.50	2.31	J	mg/L		92	50 - 150

Lab Sample ID: 280-100629-2 MS
Matrix: Water
Analysis Batch: 385706

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	15	B	25.0	40.8		mg/L		103	80 - 120
Fluoride	0.50		5.00	5.68		mg/L		104	80 - 120
Sulfate	27	B	25.0	53.7		mg/L		107	80 - 120

Lab Sample ID: 280-100629-2 MSD
Matrix: Water
Analysis Batch: 385706

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	15	B	25.0	40.9		mg/L		103	80 - 120	0	20
Fluoride	0.50		5.00	5.70		mg/L		104	80 - 120	0	20
Sulfate	27	B	25.0	53.7		mg/L		107	80 - 120	0	20

Lab Sample ID: 280-100629-2 DU
Matrix: Water
Analysis Batch: 385706

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	15	B	14.7		mg/L		2	15
Fluoride	0.50		0.488	J	mg/L		2	15
Sulfate	27	B	28.2		mg/L		5	15

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

Lab Sample ID: MB 280-385818/1
Matrix: Water
Analysis Batch: 385818

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/28/17 10:57	1

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

Lab Sample ID: LCS 280-385818/2
Matrix: Water
Analysis Batch: 385818

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	500	489		mg/L		98	86 - 110

Lab Sample ID: LCSD 280-385818/3
Matrix: Water
Analysis Batch: 385818

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	500	496		mg/L		99	86 - 110	1	20

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

Lab Sample ID: MB 280-385674/3
Matrix: Water
Analysis Batch: 385674

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			08/25/17 16:13	1

Lab Sample ID: LCS 280-385674/1
Matrix: Water
Analysis Batch: 385674

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	99.6		mg/L		100	86 - 114

Lab Sample ID: LCSD 280-385674/2
Matrix: Water
Analysis Batch: 385674

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	86 - 114	4	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-325106/1-A
Matrix: Water
Analysis Batch: 328271

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 325106

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05003	U	0.0512	0.0514	1.00	0.0786	pCi/L	08/30/17 10:52	09/21/17 08:33	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*40 - 110*	*08/30/17 10:52*	*09/21/17 08:33*	*1*

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

Lab Sample ID: LCS 160-325106/2-A
Matrix: Water
Analysis Batch: 328271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 325106

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			9.60	9.976		1.04	1.00	0.0973	pCi/L	104	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*94.1*		*40 - 110*

Lab Sample ID: LCSD 160-325106/3-A
Matrix: Water
Analysis Batch: 328271

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 325106

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			9.60	9.930		1.04	1.00	0.0730	pCi/L	103	68 - 137	0.02	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*97.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-325121/1-A
Matrix: Water
Analysis Batch: 326462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 325121

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2042	U	0.217	0.218	1.00	0.354	pCi/L	08/30/17 12:11	09/10/17 20:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:06*	*1*
Y Carrier	*81.1*		*40 - 110*	*08/30/17 12:11*	*09/10/17 20:06*	*1*

Lab Sample ID: LCS 160-325121/2-A
Matrix: Water
Analysis Batch: 326462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 325121

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.9	15.25		1.62	1.00	0.349	pCi/L	118	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*94.1*		*40 - 110*
Y Carrier	*82.6*		*40 - 110*

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

Lab Sample ID: LCSD 160-325121/3-A
Matrix: Water
Analysis Batch: 326462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 325121

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			12.9	13.89		1.49	1.00	0.318	pCi/L	107	56 - 140	0.44	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*97.1*		*40 - 110*
Y Carrier	*80.0*		*40 - 110*

QC Association Summary

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

TestAmerica Job ID: 280-100629-1

Metals

Prep Batch: 293077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total Recoverable	Water	3005A	
280-100629-2	PNMW-2B	Total Recoverable	Water	3005A	
280-100629-3	PNMW-13	Total Recoverable	Water	3005A	
280-100629-4	PNMW-14	Total Recoverable	Water	3005A	
280-100629-5	PNMW-15	Total Recoverable	Water	3005A	
280-100629-6	PNMW-16	Total Recoverable	Water	3005A	
280-100629-8	PNMW-2BD	Total Recoverable	Water	3005A	
280-100629-9	PNMW-1BEB	Total Recoverable	Water	3005A	
MB 240-293077/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-293077/23-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-293077/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 293303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total Recoverable	Water	6010C	293077
280-100629-2	PNMW-2B	Total Recoverable	Water	6010C	293077
280-100629-3	PNMW-13	Total Recoverable	Water	6010C	293077
280-100629-4	PNMW-14	Total Recoverable	Water	6010C	293077
280-100629-5	PNMW-15	Total Recoverable	Water	6010C	293077
280-100629-6	PNMW-16	Total Recoverable	Water	6010C	293077
280-100629-8	PNMW-2BD	Total Recoverable	Water	6010C	293077
280-100629-9	PNMW-1BEB	Total Recoverable	Water	6010C	293077
MB 240-293077/1-A	Method Blank	Total Recoverable	Water	6010C	293077
LCS 240-293077/2-A	Lab Control Sample	Total Recoverable	Water	6010C	293077

Analysis Batch: 294233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total Recoverable	Water	6020A	293077
280-100629-2	PNMW-2B	Total Recoverable	Water	6020A	293077
280-100629-3	PNMW-13	Total Recoverable	Water	6020A	293077
280-100629-4	PNMW-14	Total Recoverable	Water	6020A	293077
280-100629-5	PNMW-15	Total Recoverable	Water	6020A	293077
280-100629-6	PNMW-16	Total Recoverable	Water	6020A	293077
280-100629-8	PNMW-2BD	Total Recoverable	Water	6020A	293077
280-100629-9	PNMW-1BEB	Total Recoverable	Water	6020A	293077
MB 240-293077/1-A	Method Blank	Total Recoverable	Water	6020A	293077
LCS 240-293077/23-A	Lab Control Sample	Total Recoverable	Water	6020A	293077

Prep Batch: 386095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	7470A	
280-100629-2	PNMW-2B	Total/NA	Water	7470A	
280-100629-3	PNMW-13	Total/NA	Water	7470A	
280-100629-4	PNMW-14	Total/NA	Water	7470A	
280-100629-5	PNMW-15	Total/NA	Water	7470A	
280-100629-6	PNMW-16	Total/NA	Water	7470A	
280-100629-8	PNMW-2BD	Total/NA	Water	7470A	
280-100629-9	PNMW-1BEB	Total/NA	Water	7470A	
MB 280-386095/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-386095/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals (Continued)

Analysis Batch: 386245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	7470A	386095
280-100629-2	PNMW-2B	Total/NA	Water	7470A	386095
280-100629-3	PNMW-13	Total/NA	Water	7470A	386095
280-100629-4	PNMW-14	Total/NA	Water	7470A	386095
280-100629-5	PNMW-15	Total/NA	Water	7470A	386095
280-100629-6	PNMW-16	Total/NA	Water	7470A	386095
280-100629-8	PNMW-2BD	Total/NA	Water	7470A	386095
280-100629-9	PNMW-1BEB	Total/NA	Water	7470A	386095
MB 280-386095/1-A	Method Blank	Total/NA	Water	7470A	386095
LCS 280-386095/2-A	Lab Control Sample	Total/NA	Water	7470A	386095

General Chemistry

Analysis Batch: 385674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	SM 2540D	
280-100629-2	PNMW-2B	Total/NA	Water	SM 2540D	
280-100629-3	PNMW-13	Total/NA	Water	SM 2540D	
280-100629-4	PNMW-14	Total/NA	Water	SM 2540D	
280-100629-5	PNMW-15	Total/NA	Water	SM 2540D	
280-100629-6	PNMW-16	Total/NA	Water	SM 2540D	
280-100629-8	PNMW-2BD	Total/NA	Water	SM 2540D	
280-100629-9	PNMW-1BEB	Total/NA	Water	SM 2540D	
MB 280-385674/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-385674/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-385674/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 385704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-8	PNMW-2BD	Total/NA	Water	9056A	
280-100629-9	PNMW-1BEB	Total/NA	Water	9056A	

Analysis Batch: 385706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	9056A	
280-100629-1	PNMW-1B	Total/NA	Water	9056A	
280-100629-2	PNMW-2B	Total/NA	Water	9056A	
280-100629-3	PNMW-13	Total/NA	Water	9056A	
280-100629-4	PNMW-14	Total/NA	Water	9056A	
280-100629-5	PNMW-15	Total/NA	Water	9056A	
280-100629-5	PNMW-15	Total/NA	Water	9056A	
280-100629-6	PNMW-16	Total/NA	Water	9056A	
280-100629-6	PNMW-16	Total/NA	Water	9056A	
MB 280-385706/6	Method Blank	Total/NA	Water	9056A	
LCS 280-385706/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-385706/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-385706/3	Lab Control Sample	Total/NA	Water	9056A	
280-100629-2 MS	PNMW-2B	Total/NA	Water	9056A	
280-100629-2 MSD	PNMW-2B	Total/NA	Water	9056A	
280-100629-2 DU	PNMW-2B	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 385818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	SM 2540C	
280-100629-2	PNMW-2B	Total/NA	Water	SM 2540C	
280-100629-3	PNMW-13	Total/NA	Water	SM 2540C	
280-100629-4	PNMW-14	Total/NA	Water	SM 2540C	
280-100629-5	PNMW-15	Total/NA	Water	SM 2540C	
280-100629-6	PNMW-16	Total/NA	Water	SM 2540C	
280-100629-8	PNMW-2BD	Total/NA	Water	SM 2540C	
280-100629-9	PNMW-1BEB	Total/NA	Water	SM 2540C	
MB 280-385818/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-385818/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-385818/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 386082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	9040B	
280-100629-2	PNMW-2B	Total/NA	Water	9040B	
280-100629-3	PNMW-13	Total/NA	Water	9040B	
280-100629-4	PNMW-14	Total/NA	Water	9040B	
280-100629-5	PNMW-15	Total/NA	Water	9040B	
280-100629-6	PNMW-16	Total/NA	Water	9040B	
280-100629-8	PNMW-2BD	Total/NA	Water	9040B	
LCS 280-386082/29	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 386404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-9	PNMW-1BEB	Total/NA	Water	9040B	
LCS 280-386404/4	Lab Control Sample	Total/NA	Water	9040B	

Rad

Prep Batch: 325106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-100629-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-100629-3	PNMW-13	Total/NA	Water	PrecSep-21	
280-100629-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-100629-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-100629-6	PNMW-16	Total/NA	Water	PrecSep-21	
280-100629-8	PNMW-2BD	Total/NA	Water	PrecSep-21	
280-100629-9	PNMW-1BEB	Total/NA	Water	PrecSep-21	
MB 160-325106/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-325106/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-325106/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 325121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-100629-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-100629-3	PNMW-13	Total/NA	Water	PrecSep_0	
280-100629-4	PNMW-14	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 325121 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100629-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-100629-6	PNMW-16	Total/NA	Water	PrecSep_0	
280-100629-8	PNMW-2BD	Total/NA	Water	PrecSep_0	
280-100629-9	PNMW-1BEB	Total/NA	Water	PrecSep_0	
MB 160-325121/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-325121/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-325121/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-1B

Date Collected: 08/25/17 09:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 16:51	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:13	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:30	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 20:36	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 10:41	TLP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	385706	08/26/17 13:48	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.08 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:33	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.08 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326462	09/10/17 20:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Client Sample ID: PNMW-2B

Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 16:56	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:27	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:36	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 20:31	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 10:59	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.91 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:34	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.91 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326462	09/10/17 20:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-13

Date Collected: 08/24/17 16:15
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:00	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:31	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:39	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 20:26	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 11:17	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.84 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:35	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.84 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326462	09/10/17 20:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Client Sample ID: PNMW-14

Date Collected: 08/24/17 16:50
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:05	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:36	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:41	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 21:02	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 11:35	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	50 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			499.16 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:35	ALD	TAL SL
Total/NA	Prep	PrecSep_0			499.16 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326462	09/10/17 20:07	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-15

Date Collected: 08/24/17 15:40
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-5

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	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:10	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:40	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:43	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 20:57	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 11:53	TLP	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	385706	08/26/17 15:35	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.35 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:35	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.35 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326465	09/10/17 20:09	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Client Sample ID: PNMW-16

Date Collected: 08/24/17 11:20
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-6

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	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:14	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:45	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:45	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 20:41	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385706	08/26/17 12:10	TLP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	385706	08/26/17 15:53	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			1000.47 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:35	ALD	TAL SL
Total/NA	Prep	PrecSep_0			1000.47 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326465	09/10/17 20:09	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-100629-1

Client Sample ID: PNMW-2BD

Date Collected: 08/25/17 11:45
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:24	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:54	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:50	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386082	08/29/17 21:14	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385704	08/26/17 10:57	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.35 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:36	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.35 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326465	09/10/17 20:10	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Client Sample ID: PNMW-1BEB

Date Collected: 08/25/17 10:10
Date Received: 08/25/17 13:55

Lab Sample ID: 280-100629-9

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	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			293303	08/31/17 17:38	AS1	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	293077	08/30/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			294233	09/08/17 21:58	RKT	TAL CAN
Total/NA	Prep	7470A			30 mL	50 mL	386095	08/30/17 11:46	CDH	TAL DEN
Total/NA	Analysis	7470A		1			386245	08/30/17 15:52	CDH	TAL DEN
Total/NA	Analysis	9040B		1			386404	08/31/17 15:20	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	385704	08/26/17 11:14	TLP	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	385818	08/28/17 10:57	JAP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	385674	08/25/17 16:13	SVC	TAL DEN
Total/NA	Prep	PrecSep-21			999.06 mL	1.0 g	325106	08/30/17 10:52	LDE	TAL SL
Total/NA	Analysis	9315		1			328271	09/21/17 08:36	ALD	TAL SL
Total/NA	Prep	PrecSep_0			999.06 mL	1.0 g	325121	08/30/17 12:11	LDE	TAL SL
Total/NA	Analysis	9320		1			326465	09/10/17 20:10	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			328342	09/21/17 17:30	RTM	TAL SL

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SL = 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

TestAmerica Job ID: 280-100629-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Water	Mercury
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18 *
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18 *
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18 *
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-18

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18

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

Accreditation/Certification Summary

Client: HDR Inc
TestAmerica Job ID: 280-100629-1
Project/Site: Xcel Energy GW CCR Monitoring - Pawnee

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

280-100629 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Anna Lundin
Company: HDR Inc
Address: 9781 S. Meridian Blve Suite 400
City: Englewood
State, Zip: CO, 80112
Phone: 720-633-2380(Tel)
Email: anna.lundin@hdrinc.com
Project Name: Xcel Energy GW CCR Monitoring - Pawnee
Site: Colorado

Sampler: Emily Muñoz
Phone: 720 273 3436
Due Date Requested:
TAT Requested (days): Standard
PO #: DEN-001
WO #:
Project #: 28014378
SSOW#:

Lab PM: Rothmeyer, Stephanie K
E-Mail: stephanie.rothmeyer@testamericainc.com

Page: Page 1 of 2
Job #:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	8/25/17	0950	G	Water	N	N	X	X	X	X	X	7	
PNMW-2B	8/25/17	1145	G	Water	N	N	X	X	X	X	X	7	
PNMW-13	8/24/17	1615	G	Water	N	N	X	X	X	X	X	7	
PNMW-14	8/24/17	1650	G	Water	N	N	X	X	X	X	X	7	
PNMW-15	8/24/17	1540	G	Water	N	N	X	X	X	X	X	7	
PNMW-16	8/24/17	1120	G	Water	N	N	X	X	X	X	X	7	
PNMW-17	8/23/17	1235	G	Water	N	N	X	X	X	X	X	7	
~~Field Duplicate~~ PNMW-2BD	8/25/17	1145	G	Water	N	N	X	X	X	X	X	7	
~~Equipment Blank~~ PNMW-1BEB	8/25/17	1010	G	Water	N	N	X	X	X	X	X	7	

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 8/25/17 1355	Company: HDR	Received by:		Date/Time: 8/25/17 1355	Company: TA	
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: 3.4, 0.6, 2.6, 0.4 IR# 7+0.1 Transfer RP 8-25-17

Chain of Custody Record

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124-280 (0508)

Client	Project Manager	Date	Chain of Custody Number
HDR, Inc.	Matt Rohr	8/23/17	152674
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
9781 S Meridian Blvd Ste 400	303 764 1537		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Englewood / CO / 80112	Emily Munoz 720 273 3136		
Project Name and Location (State)	**Carrier/Waybill Number**		
Xcel - Pawnee CCR			
Contract/Purchase Order/Quote No.			
PEN-001 2801437 8			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed): TDS	TSS	Total Metals	Total Hg	Anions/pH	Radium 226/228	Special Instructions/ Conditions of Receipt
PNMW-22	8/22/17	1150		X			3		4				X	X	X	X	X	X	
PNMW-23	8/22/17	1335		X			3		4				X	X	X	X	X	X	
~~PNMW-21~~	8/23/17	1235		X			3		4				X	X	X	X	X	X	
PNMW-21	8/23/17	1050		X			3		4				X	X	X	X	X	X	

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

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

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

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	8/25/17	1355	1. Received By	8/25/17	1355
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410419.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 13715 Rider Trail North,	Due Date Requested: 9/26/2017			
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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-100629-1)	8/25/17	09:50 Mountain		Water			X	X	X	2	
PNMW-2B (280-100629-2)	8/25/17	11:45 Mountain		Water			X	X	X	2	
PNMW-13 (280-100629-3)	8/24/17	16:15 Mountain		Water			X	X	X	2	
PNMW-14 (280-100629-4)	8/24/17	16:50 Mountain		Water			X	X	X	2	
PNMW-15 (280-100629-5)	8/24/17	15:40 Mountain		Water			X	X	X	2	
PNMW-16 (280-100629-6)	8/24/17	11:20 Mountain		Water			X	X	X	2	
PNMW-17 (280-100629-7)	8/23/17	12:35 Mountain		Water			X	X	X	2	
PNMW-2BD (280-100629-8)	8/25/17	11:45 Mountain		Water			X	X	X	2	
PNMW-1BEB (280-100629-9)	8/25/17	10:10 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
	8/28/17 1330				
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410419.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 9/26/2017			
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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-22 (280-100629-10)	8/22/17	11:50 Mountain		Water			X	X	X	2	
PNMW-23 (280-100629-11)	8/22/17	13:35 Mountain		Water			X	X	X	2	
PNMW-21 (280-100629-12)	8/23/17	10:50 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
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:

1/16/2018 (Rev. 1)

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410418.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 9/21/2017			Preservation Codes:
City: North Canton	TAT Requested (days):			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)
State, Zip: OH, 44720				Other:
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#:			

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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-100629-1)	8/25/17	09:50 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-100629-2)	8/25/17	11:45 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-100629-3)	8/24/17	16:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-100629-4)	8/24/17	16:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-100629-5)	8/24/17	15:40 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-100629-6)	8/24/17	11:20 Mountain		Water			X	X	1	Use Collision Cell
PNMW-17 (280-100629-7)	8/23/17	12:35 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2BD (280-100629-8)	8/25/17	11:45 Mountain		Water			X	X	1	Use Collision Cell
PNMW-1BEB (280-100629-9)	8/25/17	10:10 Mountain		Water			X	X	1	, Use Collision Cell

Ref:
Dep:
Date: 28Aug17
Wgt: 21.65 LBS
SVC: STANDARD OVERNIGHT
TRK: 7367 5479 2992
DV:
0.00
SHIPPING: 0.00
SPECIAL: 0.00
HANDLING: 0.00
TOTAL: 0.00

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410418.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 9/21/2017			
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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-22 (280-100629-10)	8/22/17	11:50 Mountain		Water			X	X	1	Use Collision Cell
PNMW-23 (280-100629-11)	8/22/17	13:35 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-21 (280-100629-12)	8/23/17	10:50 Mountain		Water			X	X	1	Use Collision Cell

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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
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410419.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 9/26/2017			
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#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-100629-1)	8/25/17	09:50 Mountain		Water			X	X	X	2	
PNMW-2B (280-100629-2)	8/25/17	11:45 Mountain		Water			X	X	X	2	
PNMW-13 (280-100629-3)	8/24/17	16:15 Mountain		Water			X	X	X	2	
PNMW-14 (280-100629-4)	8/24/17	16:50 Mountain		Water			X	X	X	2	
PNMW-15 (280-100629-5)	8/24/17	15:40 Mountain		Water			X	X	X	2	
PNMW-16 (280-100629-6)	8/24/17	11:20 Mountain		Water			X	X	X	2	
PNMW-17 (280-100629-7)	8/23/17	12:35 Mountain		Water			X	X	X	2	
PNMW-2BD (280-100629-8)	8/25/17	11:45 Mountain		Water			X	X	X	2	
PNMW-1BEB (280-100629-9)	8/25/17	10:10 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
	8/28/17 1330			8/29/17 0920	
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-410419.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-100629-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 9/26/2017			
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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-22 (280-100629-10)	8/22/17	11:50 Mountain		Water			X	X	X	2	
PNMW-23 (280-100629-11)	8/22/17	13:35 Mountain		Water			X	X	X	2	
PNMW-21 (280-100629-12)	8/23/17	10:50 Mountain		Water			X	X	X	2	

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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: 8/28/17 1330	Company	Received by: [signature]	Date/Time: 8/29/17 0920	Company TAST
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:		

19.2/19.2

TestAmerica Denver
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Address: 4101 Shuffel Street NW, ,	Due Date Requested: 9/21/2017			
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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							517
PNMW-1B (280-100629-1)	8/25/17	09:50 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-100629-2)	8/25/17	11:45 Mountain		Water			X	X	1	Use Collision Cell
PNMW-13 (280-100629-3)	8/24/17	16:15 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-100629-4)	8/24/17	16:50 Mountain		Water			X	X	1	Use Collision Cell
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PNMW-1BEB (280-100629-9)	8/25/17	10:10 Mountain		Water			X	X	1	, Use Collision Cell

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Patricia Lee	8/28/17 1340	TAD		8/29/17 945	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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Address: 4101 Shuffel Street NW, ,	Due Date Requested: 9/21/2017			
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

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G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

S17

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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
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PNMW-23 (280-100629-11)	8/22/17	13:35 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-21 (280-100629-12)	8/23/17	10:50 Mountain		Water			X	X	1	Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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: Fabrida Nue	Date/Time: 8/28/17 1340	Company: TAD	Received by: [signature]	Date/Time: 8/29/17 945	Company: TA
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:

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

Client TA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 8/29/17 Opened on 8/29/17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. 19.2 °C Corrected Cooler Temp. 19.2 °C
   IR GUN #36 (CF +0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were custody seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
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 11-15 have been checked at the originating laboratory.		
11. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC697954
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. 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 _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

Ref: SOP NC-SC-0005, Sample Receiving
\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-082417 Cooler Receipt Form.doc djl

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-100629-1

Login Number: 100629
List Number: 1
Creator: Pottruff, Reed W

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-100629-1

Login Number: 100629
List Number: 3
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 08/29/17 03:30 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.	N/A	
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	19.0,19.0,19.0,19.0,19.0
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.	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

TestAmerica Job ID: 280-100629-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-100629-1	PNMW-1B	92.3
280-100629-2	PNMW-2B	94.4
280-100629-3	PNMW-13	77.9
280-100629-4	PNMW-14	72.6
280-100629-5	PNMW-15	88.8
280-100629-6	PNMW-16	90.9
280-100629-8	PNMW-2BD	95.9
280-100629-9	PNMW-1BEB	97.9
LCS 160-325106/2-A	Lab Control Sample	94.1
LCSD 160-325106/3-A	Lab Control Sample Dup	97.1
MB 160-325106/1-A	Method Blank	95.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-100629-1	PNMW-1B	92.3	80.4
280-100629-2	PNMW-2B	94.4	83.4
280-100629-3	PNMW-13	77.9	80.7
280-100629-4	PNMW-14	72.6	83.7
280-100629-5	PNMW-15	88.8	83.0
280-100629-6	PNMW-16	90.9	84.1
280-100629-8	PNMW-2BD	95.9	82.2
280-100629-9	PNMW-1BEB	97.9	88.2
LCS 160-325121/2-A	Lab Control Sample	94.1	82.6
LCSD 160-325121/3-A	Lab Control Sample Dup	97.1	80.0
MB 160-325121/1-A	Method Blank	95.6	81.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-101415-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 1:20:13 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

Links

Review your project results through TotalAccess

Have a Question? Ask The Expert

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-101415-1

Qualifiers

Rad

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

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: 280-101415-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-101415-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 9/21/2017 at 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9º C and 1.0º C.

RADIUM-226 (GFPC)
Samples PNMW-1B (280-101415-1), PNMW-2B (280-101415-2) PNMW-14 (280-101415-4), PNMW-15 (280-101415-5) and PNMW-16 (280-101415-6) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 09/25/2017 and analyzed on 10/17/2017.

The following samples were reduced due to heavy amounts of sediment making sample murky and brown: PNMW-14 (280-101415-4), PNMW-15 (280-101415-5), PNMW-16 (280-101415-6).

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

RADIUM-228
Samples PNMW-1B (280-101415-1), PNMW-2B (280-101415-2), PNMW-14 (280-101415-4), PNMW-15 (280-101415-5) and PNMW-16 (280-101415-6) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 09/25/2017 and analyzed on 09/28/2017.

The following samples were reduced due to heavy amounts of sediment making sample murky and brown: PNMW-14 (280-101415-4), PNMW-15 (280-101415-5), PNMW-16 (280-101415-6).

The radium-228 detection goal was not met for the following samples due to the reduced sample volume attributed to the presence of matrix interferences: PNMW-14 (280-101415-4), PNMW-16 (280-101415-6). Analytical results are reported with the detection limit achieved.

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 (280-101415-1), PNMW-2B (280-101415-2), PNMW-14 (280-101415-4), PNMW-15 (280-101415-5) and PNMW-16 (280-101415-6) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on

Job ID: 280-101415-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

10/19/2017.

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

TestAmerica Job ID: 280-101415-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-101415-1

No Detections.

Client Sample ID: PNMW-2B — Lab Sample ID: 280-101415-2

No Detections.

Client Sample ID: PNMW-14 — Lab Sample ID: 280-101415-4

No Detections.

Client Sample ID: PNMW-15 — Lab Sample ID: 280-101415-5

No Detections.

Client Sample ID: PNMW-16 — Lab Sample ID: 280-101415-6

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-101415-1

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = 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

TestAmerica Job ID: 280-101415-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-101415-1	PNMW-1B	Water	09/19/17 17:45	09/21/17 09:00
280-101415-2	PNMW-2B	Water	09/19/17 16:25	09/21/17 09:00
280-101415-4	PNMW-14	Water	09/19/17 13:05	09/21/17 09:00
280-101415-5	PNMW-15	Water	09/19/17 11:00	09/21/17 09:00
280-101415-6	PNMW-16	Water	09/19/17 11:55	09/21/17 09:00

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 09/19/17 17:45
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.141		0.0680	0.0692	1.00	0.0755	pCi/L	09/25/17 10:00	10/17/17 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110	09/25/17 10:00	10/17/17 12:25	1

Client Sample ID: PNMW-2B
Date Collected: 09/19/17 16:25
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101		0.0617	0.0624	1.00	0.0786	pCi/L	09/25/17 10:00	10/17/17 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110	09/25/17 10:00	10/17/17 12:25	1

Client Sample ID: PNMW-14
Date Collected: 09/19/17 13:05
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.17		0.401	0.415	1.00	0.376	pCi/L	09/25/17 10:00	10/17/17 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	79.1		40 - 110	09/25/17 10:00	10/17/17 12:25	1

Client Sample ID: PNMW-15
Date Collected: 09/19/17 11:00
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.482		0.129	0.136	1.00	0.0831	pCi/L	09/25/17 10:00	10/17/17 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110	09/25/17 10:00	10/17/17 12:25	1

Client Sample ID: PNMW-16
Date Collected: 09/19/17 11:55
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.405		0.164	0.168	1.00	0.164	pCi/L	09/25/17 10:00	10/17/17 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.7		40 - 110	09/25/17 10:00	10/17/17 12:25	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-1B
Date Collected: 09/19/17 17:45
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.573**		0.304	0.309	1.00	0.454	pCi/L	09/25/17 10:22	09/28/17 14:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:10*	*1*
Y Carrier	*77.0*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:10*	*1*

Client Sample ID: PNMW-2B
Date Collected: 09/19/17 16:25
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.441	U	0.298	0.301	1.00	0.464	pCi/L	09/25/17 10:22	09/28/17 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*
Y Carrier	*77.4*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*

Client Sample ID: PNMW-14
Date Collected: 09/19/17 13:05
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.84	U G	1.33	1.34	1.00	2.08	pCi/L	09/25/17 10:22	09/28/17 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*79.1*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*
Y Carrier	*78.9*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*

Client Sample ID: PNMW-15
Date Collected: 09/19/17 11:00
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.821**		0.395	0.402	1.00	0.579	pCi/L	09/25/17 10:22	09/28/17 14:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.8*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*
Y Carrier	*78.1*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:11*	*1*

Client Sample ID: PNMW-16
Date Collected: 09/19/17 11:55
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.714	U G	0.654	0.657	1.00	1.06	pCi/L	09/25/17 10:22	09/28/17 14:11	1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.7		40 - 110	09/25/17 10:22	09/28/17 14:11	1
Y Carrier	81.5		40 - 110	09/25/17 10:22	09/28/17 14:11	1

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

Client Sample ID: PNMW-1B
Date Collected: 09/19/17 17:45
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.714		0.312	0.317	5.00	0.454	pCi/L		10/19/17 11:36	1

Client Sample ID: PNMW-2B
Date Collected: 09/19/17 16:25
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.542		0.304	0.307	5.00	0.464	pCi/L		10/19/17 11:36	1

Client Sample ID: PNMW-14
Date Collected: 09/19/17 13:05
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.01		1.39	1.40	5.00	2.08	pCi/L		10/19/17 11:36	1

Client Sample ID: PNMW-15
Date Collected: 09/19/17 11:00
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.30		0.416	0.424	5.00	0.579	pCi/L		10/19/17 11:36	1

Client Sample ID: PNMW-16
Date Collected: 09/19/17 11:55
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.12		0.674	0.678	5.00	1.06	pCi/L		10/19/17 11:36	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-328838/1-A
Matrix: Water
Analysis Batch: 332199

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 328838

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.002822	U	0.0356	0.0356	1.00	0.0770	pCi/L	09/25/17 10:00	10/17/17 08:57	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*09/25/17 10:00*	*10/17/17 08:57*	*1*

Lab Sample ID: LCS 160-328838/2-A
Matrix: Water
Analysis Batch: 332199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328838

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			9.60	8.263		0.866	1.00	0.0724	pCi/L	86	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.4*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-328839/1-A
Matrix: Water
Analysis Batch: 329342

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 328839

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1147	U	0.252	0.252	1.00	0.431	pCi/L	09/25/17 10:22	09/28/17 14:08	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:08*	*1*
Y Carrier	*77.0*		*40 - 110*	*09/25/17 10:22*	*09/28/17 14:08*	*1*

Lab Sample ID: LCS 160-328839/2-A
Matrix: Water
Analysis Batch: 329342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328839

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.9	14.63		1.60	1.00	0.417	pCi/L	114	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.4*		*40 - 110*
Y Carrier	*75.9*		*40 - 110*

QC Association Summary

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

TestAmerica Job ID: 280-101415-1

Rad

Prep Batch: 328838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-101415-1	PNMW-1B	Total/NA	Water	PrecSep-21	
280-101415-2	PNMW-2B	Total/NA	Water	PrecSep-21	
280-101415-4	PNMW-14	Total/NA	Water	PrecSep-21	
280-101415-5	PNMW-15	Total/NA	Water	PrecSep-21	
280-101415-6	PNMW-16	Total/NA	Water	PrecSep-21	
MB 160-328838/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-328838/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 328839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-101415-1	PNMW-1B	Total/NA	Water	PrecSep_0	
280-101415-2	PNMW-2B	Total/NA	Water	PrecSep_0	
280-101415-4	PNMW-14	Total/NA	Water	PrecSep_0	
280-101415-5	PNMW-15	Total/NA	Water	PrecSep_0	
280-101415-6	PNMW-16	Total/NA	Water	PrecSep_0	
MB 160-328839/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-328839/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-101415-1

Client Sample ID: PNMW-1B
Date Collected: 09/19/17 17:45
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.28 mL	1.0 g	328838	09/25/17 10:00	LDE	TAL SL
Total/NA	Analysis	9315		1			332199	10/17/17 12:25	RTM	TAL SL
Total/NA	Prep	PrecSep_0			999.28 mL	1.0 g	328839	09/25/17 10:22	LDE	TAL SL
Total/NA	Analysis	9320		1			329342	09/28/17 14:10	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			332668	10/19/17 11:36	RTM	TAL SL

Client Sample ID: PNMW-2B
Date Collected: 09/19/17 16:25
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.84 mL	1.0 g	328838	09/25/17 10:00	LDE	TAL SL
Total/NA	Analysis	9315		1			332199	10/17/17 12:25	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.84 mL	1.0 g	328839	09/25/17 10:22	LDE	TAL SL
Total/NA	Analysis	9320		1			329341	09/28/17 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			332668	10/19/17 11:36	RTM	TAL SL

Client Sample ID: PNMW-14
Date Collected: 09/19/17 13:05
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			249.40 mL	1.0 g	328838	09/25/17 10:00	LDE	TAL SL
Total/NA	Analysis	9315		1			332199	10/17/17 12:25	RTM	TAL SL
Total/NA	Prep	PrecSep_0			249.40 mL	1.0 g	328839	09/25/17 10:22	LDE	TAL SL
Total/NA	Analysis	9320		1			329341	09/28/17 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			332668	10/19/17 11:36	RTM	TAL SL

Client Sample ID: PNMW-15
Date Collected: 09/19/17 11:00
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.01 mL	1.0 g	328838	09/25/17 10:00	LDE	TAL SL
Total/NA	Analysis	9315		1			332199	10/17/17 12:25	RTM	TAL SL
Total/NA	Prep	PrecSep_0			749.01 mL	1.0 g	328839	09/25/17 10:22	LDE	TAL SL
Total/NA	Analysis	9320		1			329341	09/28/17 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			332668	10/19/17 11:36	RTM	TAL SL

Lab Chronicle

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

TestAmerica Job ID: 280-101415-1

Client Sample ID: PNMW-16

Date Collected: 09/19/17 11:55
Date Received: 09/21/17 09:00

Lab Sample ID: 280-101415-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			499.41 mL	1.0 g	328838	09/25/17 10:00	LDE	TAL SL
Total/NA	Analysis	9315		1			332199	10/17/17 12:25	RTM	TAL SL
Total/NA	Prep	PrecSep_0			499.41 mL	1.0 g	328839	09/25/17 10:22	LDE	TAL SL
Total/NA	Analysis	9320		1			329341	09/28/17 14:11	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			332668	10/19/17 11:36	RTM	TAL SL

Laboratory References:

TAL SL = 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

TestAmerica Job ID: 280-101415-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaitlin Fishburn	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: Anna Lundin	Phone: 208 841 9707	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Englewood	TAT Requested (days): Standard		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 - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: CO, 80112			
Phone: 720-633-2380(Tel)	PO #: DEN-001		Other:
Email: anna.lundin@hdrinc.com	WO #:		
Project Name: Xcel Energy GW CCR Monitoring - Pawnee	Project #: 28014378		
Site: Colorado	SSOW#:		

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 - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	D	N	N	D		
~~PNMW-1B~~				Water		N							
~~PNMW-2B~~				Water		N							
~~PNMW-13~~				Water		N							
PNMW-14	9/19/17	1305	G	Water	N	N	X	X	X	X	X		
PNMW-15	9/19/17	1100	G	Water	N	N	X	X	X	X	X		
PNMW-16	9/19/17	1155	G	Water	N	N	X	X	X	X	X		
~~PNMW-17~~				Water		N							
~~Field Duplicate~~				Water		N							
~~Equipment Blank~~				Water		N							

280-101415 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
	9/20/17 1700	HDR	FedEx (sealed)		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			Lauren Lay	9/21/17 0900	HDR
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:

0.9, 0.8 CF 0.1 ~~IR#7~~ 9/21/17

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaitlin Fishburn	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: Anna Lundin	Phone: 208.841.9707	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: HDR Inc				Job #:

Address: 9781 S. Meridian Blve Suite 400	Due Date Requested:	
City: Englewood	TAT Requested (days): Standard	
State, Zip: CO, 80112		
Phone: 720-633-2380(Tel)	PO #: DEN-001	
Email: anna.lundin@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 - Na2S2SO3, 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)	2540C - Total Dissolved Solids (TDS)	Metals - 6020A, 6010C, 7470A	pH - 9040B, Anions - 9056A_28D	2540D - Total Suspended Solids	9315_Ra226, 9320_Ra228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	D		
PNMW-1B	9/19/17	1745	G	Water	N	N	X	X	X	X	X		
PNMW-2B	9/19/17	1625	G	Water	N	N	X	X	X	X	X		
~~PNMW-13~~				Water		N							
~~PNMW-14~~				Water		N							
~~PNMW-15~~				Water		N							
~~PNMW-16~~				Water		N							
~~PNMW-17~~				Water		N							
~~Field Duplicate~~				Water	N	N	X	X					
Equipment Blank	9/20/17	0845	G	Water	N	N	X	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: 9/20/17 1700	Company: HDR	Received by: FedEx (sealed)
Relinquished by:	Date/Time:	Company	Received by: Lauren Leep
Relinquished by:	Date/Time:	Company	Received by:

Date/Time: 9/21/17 0900 Company: TAD

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

0.9, 0.8 CF0.1 IR#7 9/21/17

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-412623.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-101415-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 10/19/2017			
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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-1B (280-101415-1)	9/19/17	17:45 Mountain		Water			X	X	X	2	
PNMW-2B (280-101415-2)	9/19/17	16:25 Mountain		Water			X	X	X	2	
EQUIPMENT BLANK (280-101415-3)	9/20/17	08:45 Mountain		Water			X	X	X	2	
PNMW-14 (280-101415-4)	9/19/17	13:05 Mountain		Water			X	X	X	2	
PNMW-15 (280-101415-5)	9/19/17	11:00 Mountain		Water			X	X	X	2	
PNMW-16 (280-101415-6)	9/19/17	11:55 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: [signature]	9/21/17 1540		[signature]	9-22-17 0900	TASR
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:

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

20.0/C20.0

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-412622.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-101415-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 10/16/2017			
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 (MOD) Boron	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-1B (280-101415-1)	9/19/17	17:45 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-2B (280-101415-2)	9/19/17	16:25 Mountain		Water			X	X	1	Use Collision Cell
EQUIPMENT BLANK (280-101415-3)	9/20/17	08:45 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-14 (280-101415-4)	9/19/17	13:05 Mountain		Water			X	X	1	Use Collision Cell
PNMW-15 (280-101415-5)	9/19/17	11:00 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-16 (280-101415-6)	9/19/17	11:55 Mountain		Water			X	X	1	Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

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
	9/21/17 16:30			9/22/17 1245	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

Client TA Denver Site Name _____ Cooler unpacked by:

Cooler Received on 9/22/17 Opened on 9/22/17

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

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

TestAmerica Cooler # _____ 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-8 (CF **+0** °C) Observed Cooler Temp. 20.0 °C Corrected Cooler Temp. 20.0 °C

IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN # 627 (CF **-1.3**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No) NA
-Were tamper/custody seals intact and uncompromised?	Yes	No (NA)
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	(Yes)	No
If yes, Questions 11-15 have been checked at the originating laboratory.		
11. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC697954**
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. 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 _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

_____

_____

_____

_____

_____

17. 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)

18. SAMPLE PRESERVATION

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

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-101415-1

Login Number: 101415
List Number: 1
Creator: Loux, Lauren P

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-101415-1

Login Number: 101415
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 09/23/17 05:07 AM

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.	N/A	
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	20.0, 20.0
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.	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

TestAmerica Job ID: 280-101415-1

Method: 9315 - Radium-226 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
280-101415-1	PNMW-1B	95.3
280-101415-2	PNMW-2B	94.1
280-101415-4	PNMW-14	79.1
280-101415-5	PNMW-15	96.8
280-101415-6	PNMW-16	89.7
LCS 160-328838/2-A	Lab Control Sample	99.4
MB 160-328838/1-A	Method Blank	101

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
280-101415-1	PNMW-1B	95.3	77.0
280-101415-2	PNMW-2B	94.1	77.4
280-101415-4	PNMW-14	79.1	78.9
280-101415-5	PNMW-15	96.8	78.1
280-101415-6	PNMW-16	89.7	81.5
LCS 160-328839/2-A	Lab Control Sample	99.4	75.9
MB 160-328839/1-A	Method Blank	101	77.0

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

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ANALYTICAL REPORT

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

TestAmerica Job ID: 280-101651-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
1/16/2018 1:42:50 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.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.

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Definitions/Glossary

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

TestAmerica Job ID: 280-101651-1

Qualifiers

Rad

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 280-101651-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-101651-1

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.

REVISION 1 CHANGES
The report is revised to split samples into several reports, per client request.

RECEIPT
The samples were received on 9/27/2017 at 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9º C and 1.2º C.

RADIUM-226 (GFPC)
Sample PNMW-13 (280-101651-1) was analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 10/02/2017 and analyzed on 10/24/2017.

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

RADIUM-228
Sample PNMW-13 (280-101651-1) was analyzed for Radium-228 in accordance with 9320. The samples were prepared on 10/02/2017 and analyzed on 10/10/2017.

Radium-228 was detected in method blank MB 160-329882/1-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.

RADIUM-226/RADIUM-228 (GFPC)
Sample PNMW-13 (280-101651-1) was analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 10/25/2017.

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

TestAmerica Job ID: 280-101651-1

Client Sample ID: PNMW-13 **Lab Sample ID: 280-101651-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-101651-1

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = 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

TestAmerica Job ID: 280-101651-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-101651-1	PNMW-13	Water	09/27/17 10:20	09/27/17 14:15

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: PNMW-13
Date Collected: 09/27/17 10:20
Date Received: 09/27/17 14:15

Lab Sample ID: 280-101651-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.232**		0.0873	0.0898	1.00	0.0770	pCi/L	10/02/17 10:04	10/24/17 09:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*10/02/17 10:04*	*10/24/17 09:48*	*1*

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: PNMW-13
Date Collected: 09/27/17 10:20
Date Received: 09/27/17 14:15

Lab Sample ID: 280-101651-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.225	U	0.263	0.264	1.00	0.434	pCi/L	10/02/17 10:41	10/10/17 16:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.5*		*40 - 110*	*10/02/17 10:41*	*10/10/17 16:27*	*1*
Y Carrier	*84.9*		*40 - 110*	*10/02/17 10:41*	*10/10/17 16:27*	*1*

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

Client Sample ID: PNMW-13
Date Collected: 09/27/17 10:20
Date Received: 09/27/17 14:15

Lab Sample ID: 280-101651-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.458**		0.277	0.279	5.00	0.434	pCi/L		10/25/17 18:29	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-329857/1-A
Matrix: Water
Analysis Batch: 333586

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329857

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02218	U	0.0402	0.0403	1.00	0.0723	pCi/L	10/02/17 10:04	10/24/17 09:42	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*10/02/17 10:04*	*10/24/17 09:42*	*1*

Lab Sample ID: LCS 160-329857/2-A
Matrix: Water
Analysis Batch: 333586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329857

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			9.60	8.922		0.925	1.00	0.0456	pCi/L	93	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-329882/1-A
Matrix: Water
Analysis Batch: 331119

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329882

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3820		0.202	0.205	1.00	0.295	pCi/L	10/02/17 10:41	10/10/17 16:23	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*10/02/17 10:41*	*10/10/17 16:23*	*1*
Y Carrier	*83.7*		*40 - 110*	*10/02/17 10:41*	*10/10/17 16:23*	*1*

Lab Sample ID: LCS 160-329882/2-A
Matrix: Water
Analysis Batch: 331119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329882

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.8	13.51		1.45	1.00	0.321	pCi/L	106	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*
Y Carrier	*80.0*		*40 - 110*

QC Association Summary

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

TestAmerica Job ID: 280-101651-1

Rad

Prep Batch: 329857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-101651-1	PNMW-13	Total/NA	Water	PrecSep-21	
MB 160-329857/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-329857/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 329882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-101651-1	PNMW-13	Total/NA	Water	PrecSep_0	
MB 160-329882/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-329882/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

TestAmerica Job ID: 280-101651-1

Client Sample ID: PNMW-13
Date Collected: 09/27/17 10:20
Date Received: 09/27/17 14:15

Lab Sample ID: 280-101651-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.32 mL	1.0 g	329857	10/02/17 10:04	LDE	TAL SL
Total/NA	Analysis	9315		1			333589	10/24/17 09:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			1000.32 mL	1.0 g	329882	10/02/17 10:41	LDE	TAL SL
Total/NA	Analysis	9320		1			331117	10/10/17 16:27	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			333962	10/25/17 18:29	RTM	TAL SL

Laboratory References:

TAL SL = 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

TestAmerica Job ID: 280-101651-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Iowa	State Program	7	373	02-01-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18 *
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
West Virginia DEP	State Program	3	381	08-31-18

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

Chain of Custody Record

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

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TAL-4124-280 (0508)

Client	Project Manager	Date	Chain of Custody Number
Anna Lundin (HDR Inc)	Anna Lundin (Anna.Lundin@hdrinc.com)	9-27-17	180737

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page ____ of ____
9781 S Meridian Blvd Ste 400	720-633-2380		

City	State	Zip Code	Site Contact	Lab Contact
Englewood	CO	80112	Fishburn 208 841 9207	

Project Name and Location (State): Xcel Energy GW CCR Monitoring - Pawnee

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	2540C-TDS	Metals-6020A, 6010C, 7470A	pH 9040B/Anions 9056A, 28D	2540D-TSS	9315 RA226 Ra228 9320	Special Instructions/ Conditions of Receipt
PNMW-13	9-27-17	1020		X			3		4				X	X	X	X	X	
PNMW-17	9-26-17	1540		X			3		4				X	X	X	X	X	
PNMW-21	9/26/17	1320		X			3		4				X	X	X	X	X	
PNMW-22	9-26-17	0925		X			3		4				X	X	X	X	X	
PNMW-23	9-26-17	1055		X			3		4				X	X	X	X	X	
PNMW-17D	9-26-17	1540		X			3		4				X	X	X	X	X	

280-101651 Chain of Custody

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STD

QC Requirements (Specify): 1.1, 0.8 IR#7 +0.1 Transfer RP 9-27-17

	Date	Time		Date	Time
1. Relinquished By: Kaitlin Fishburn	9-27-17	1415	1. Received By: [signature]	9/27/17	1415
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-413381.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-101651-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 10/26/2017			
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)	Ra226Ra228_GFPC/ (MOD) Local Method	9315_Ra226/PrecSep_21 Radium-226 (1/3)	9320_Ra228/PrecSep_0 Radium-228 (2/3)	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-13 (280-101651-1)	9/27/17	10:20 Mountain		Water			X	X	X	2	
PNMW-17 (280-101651-2)	9/26/17	15:40 Mountain		Water			X	X	X	2	
PNMW-21 (280-101651-3)	9/26/17	13:20 Mountain		Water			X	X	X	2	
PNMW-22 (280-101651-4)	9/26/17	09:25 Mountain		Water			X	X	X	2	
PNMW-23 (280-101651-5)	9/26/17	10:55 Mountain		Water			X	X	X	2	
PNMW-17D (280-101651-6)	9/26/17	15:40 Mountain		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	9/28/17 16:05		Kristene Taylor	9/29/17 0910	TAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

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

13.8 / C13.8

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-413379.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-101651-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 10/23/2017			
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:

562

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 (MOD) Boron	6020A/3006A (MOD) 13 Total Metals (w/collision cell)	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PNMW-13 (280-101651-1)	9/27/17	10:20 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-17 (280-101651-2)	9/26/17	15:40 Mountain		Water			X	X	1	Use Collision Cell
PNMW-21 (280-101651-3)	9/26/17	13:20 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-22 (280-101651-4)	9/26/17	09:25 Mountain		Water			X	X	1	Use Collision Cell
PNMW-23 (280-101651-5)	9/26/17	10:55 Mountain		Water			X	X	1	, Use Collision Cell
PNMW-17D (280-101651-6)	9/26/17	15:40 Mountain		Water			X	X	1	Use Collision Cell

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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
	9/28/17 16:10			9/29/17 940	TA
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:

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

Canton Facility

Cooler unpacked by:

Client TA Denver Site Name _____

Cooler Received on 9/29/17 Opened on 9/29/17

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

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

TestAmerica Cooler # _____ 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

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt

IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. 13.8 °C Corrected Cooler Temp. 13.8 °C

IR GUN #36 (CF +0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN # 627 (CF -1.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No NA
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 11-15 have been checked at the originating laboratory.		
11. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC697954**
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. 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 _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-101651-1

Login Number: 101651
List Number: 1
Creator: Pottruff, Reed W

List Source: 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	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-101651-1

Login Number: 101651
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 09/29/17 11:02 AM

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.	N/A	
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	18.0
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.	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

TestAmerica Job ID: 280-101651-1

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
280-101651-1	PNMW-13	83.5
LCS 160-329857/2-A	Lab Control Sample	108
MB 160-329857/1-A	Method Blank	106

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
280-101651-1	PNMW-13	83.5	84.9
LCS 160-329882/2-A	Lab Control Sample	108	80.0
MB 160-329882/1-A	Method Blank	106	83.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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

TestAmerica Job ID: 280-102195-1
Client Project/Site: Xcel Energy GW CCR Monitoring - Pawnee
Revision: 1

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

Attn: Molly Reeves

Stephanie Rothmeyer

Authorized for release by:
12/12/2017 4:06:37 PM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

Review your project results through TotalAccess

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 280-102195-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
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)
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: 280-102195-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Pawnee

Report Number: 280-102195-1

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.

REVISION 1 CHANGES
The report is revised to include only Appendix III constituents.

RECEIPT
The samples were received on 10/11/2017 at 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.5° C.

TOTAL RECOVERABLE METALS
Samples PNMW-13 (280-102195-1), PNMW-14 (280-102195-2), PNMW-15 (280-102195-3), PNMW-16 (280-102195-4), PNMW-1B (280-102195-5), PNMW-2B (280-102195-6), PNMW-15D (280-102195-7) and PNMW-16EB (280-102195-8) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/16/2017 and analyzed on 10/17/2017.

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

TOTAL RECOVERABLE METALS (ICPMS)
Samples PNMW-13 (280-102195-1), PNMW-14 (280-102195-2), PNMW-15 (280-102195-3), PNMW-16 (280-102195-4), PNMW-1B (280-102195-5), PNMW-2B (280-102195-6), PNMW-15D (280-102195-7) and PNMW-16EB (280-102195-8) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 10/16/2017 and analyzed on 10/19/2017 and 10/20/2017.

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

TOTAL DISSOLVED SOLIDS
Samples PNMW-13 (280-102195-1), PNMW-14 (280-102195-2), PNMW-15 (280-102195-3), PNMW-16 (280-102195-4), PNMW-1B (280-102195-5), PNMW-2B (280-102195-6), PNMW-15D (280-102195-7) and PNMW-16EB (280-102195-8) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 10/16/2017.

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

CORROSIVITY (PH)
Samples PNMW-13 (280-102195-1), PNMW-14 (280-102195-2), PNMW-15 (280-102195-3), PNMW-16 (280-102195-4), PNMW-1B (280-102195-5), PNMW-2B (280-102195-6), PNMW-15D (280-102195-7) and PNMW-16EB (280-102195-8) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 10/23/2017 and 10/31/2017.

Job ID: 280-102195-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

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

ANIONS (28 DAYS)

Samples PNMW-13 (280-102195-1), PNMW-14 (280-102195-2), PNMW-15 (280-102195-3), PNMW-16 (280-102195-4), PNMW-1B (280-102195-5), PNMW-2B (280-102195-6), PNMW-15D (280-102195-7) and PNMW-16EB (280-102195-8) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 11/04/2017.

Samples PNMW-15 (280-102195-3)[10X], PNMW-16 (280-102195-4)[10X], PNMW-1B (280-102195-5)[10X] and PNMW-15D (280-102195-7)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

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

TestAmerica Job ID: 280-102195-1

Client Sample ID: PNMW-13 — Lab Sample ID: 280-102195-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.24		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	41		1.0	0.58	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	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.8		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.2		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	42		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	360		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-14 — Lab Sample ID: 280-102195-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.083	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	61		1.0	0.58	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.8	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	23		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	320		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-15 — Lab Sample ID: 280-102195-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.38		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	170		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	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.7		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.24	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	830		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-16 — Lab Sample ID: 280-102195-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.38		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	210		1.0	0.58	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.8	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	2.4	J	3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.23	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	1100		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 280-102195-1

Client Sample ID: PNMW-1B — Lab Sample ID: 280-102195-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.26		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	120		1.0	0.58	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	65		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.83		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	290		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	890		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-2B — Lab Sample ID: 280-102195-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.050	J	0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	92		1.0	0.58	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	14		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.50		0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	25		5.0	0.23	mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	480		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-15D — Lab Sample ID: 280-102195-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.39		0.20	0.0081	mg/L	1		6010C	Total Recoverable
Calcium	180		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	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	3.4		3.0	0.25	mg/L	1		9056A	Total/NA
Fluoride	0.23	J	0.50	0.060	mg/L	1		9056A	Total/NA
Sulfate	910		50	2.3	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1500		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PNMW-16EB — Lab Sample ID: 280-102195-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	5.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

TestAmerica Job ID: 280-102195-1

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

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

TAL DEN = 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

TestAmerica Job ID: 280-102195-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-102195-1	PNMW-13	Water	10/11/17 10:25	10/11/17 15:00
280-102195-2	PNMW-14	Water	10/11/17 09:40	10/11/17 15:00
280-102195-3	PNMW-15	Water	10/10/17 15:27	10/11/17 15:00
280-102195-4	PNMW-16	Water	10/10/17 17:06	10/11/17 15:00
280-102195-5	PNMW-1B	Water	10/11/17 12:42	10/11/17 15:00
280-102195-6	PNMW-2B	Water	10/11/17 11:32	10/11/17 15:00
280-102195-7	PNMW-15D	Water	10/10/17 15:32	10/11/17 15:00
280-102195-8	PNMW-16EB	Water	10/10/17 17:30	10/11/17 15:00

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

Client Sample ID: PNMW-13
Date Collected: 10/11/17 10:25
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.24		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 18:19	1

Client Sample ID: PNMW-14
Date Collected: 10/11/17 09:40
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.083	J	0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:13	1

Client Sample ID: PNMW-15
Date Collected: 10/10/17 15:27
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.38		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:18	1

Client Sample ID: PNMW-16
Date Collected: 10/10/17 17:06
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.38		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:32	1

Client Sample ID: PNMW-1B
Date Collected: 10/11/17 12:42
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.26		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:36	1

Client Sample ID: PNMW-2B
Date Collected: 10/11/17 11:32
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.050	J	0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:41	1

Client Sample ID: PNMW-15D
Date Collected: 10/10/17 15:32
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.39		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:46	1

Client Sample ID: PNMW-16EB
Date Collected: 10/10/17 17:30
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 19:50	1

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

Client Sample ID: PNMW-13
Date Collected: 10/11/17 10:25
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	41		1.0	0.58	mg/L		10/16/17 14:00	10/19/17 22:59	1

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

Client Sample ID: PNMW-14
Date Collected: 10/11/17 09:40
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	61		1.0	0.58	mg/L		10/16/17 14:00	10/19/17 23:54	1

Client Sample ID: PNMW-15
Date Collected: 10/10/17 15:27
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170		1.0	0.58	mg/L		10/16/17 14:00	10/19/17 23:58	1

Client Sample ID: PNMW-16
Date Collected: 10/10/17 17:06
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210		1.0	0.58	mg/L		10/16/17 14:00	10/20/17 00:03	1

Client Sample ID: PNMW-1B
Date Collected: 10/11/17 12:42
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120		1.0	0.58	mg/L		10/16/17 14:00	10/20/17 00:07	1

Client Sample ID: PNMW-2B
Date Collected: 10/11/17 11:32
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	92		1.0	0.58	mg/L		10/16/17 14:00	10/20/17 00:12	1

Client Sample ID: PNMW-15D
Date Collected: 10/10/17 15:32
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	180		1.0	0.58	mg/L		10/16/17 14:00	10/20/17 00:16	1

Client Sample ID: PNMW-16EB
Date Collected: 10/10/17 17:30
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.58	mg/L		10/16/17 14:00	10/20/17 00:21	1

General Chemistry

Client Sample ID: PNMW-13
Date Collected: 10/11/17 10:25
Date Received: 10/11/17 15:00
Lab Sample ID: 280-102195-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			10/23/17 17:06	1
Temperature	22.3	HF	1.0	1.0	Degrees C			10/23/17 17:06	1
Chloride	3.8		3.0	0.25	mg/L			11/04/17 13:19	1
Fluoride	1.2		0.50	0.060	mg/L			11/04/17 13:19	1
Sulfate	42		5.0	0.23	mg/L			11/04/17 13:19	1
Total Dissolved Solids (TDS)	360		10	4.7	mg/L			10/16/17 13:00	1

General Chemistry

Client Sample ID: PNMW-14
Date Collected: 10/11/17 09:40
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			10/23/17 17:12	1
Temperature	22.3	HF	1.0	1.0	Degrees C			10/23/17 17:12	1
Chloride	1.8	J	3.0	0.25	mg/L			11/04/17 13:36	1
Fluoride	1.1		0.50	0.060	mg/L			11/04/17 13:36	1
Sulfate	23		5.0	0.23	mg/L			11/04/17 13:36	1
Total Dissolved Solids (TDS)	320		10	4.7	mg/L			10/16/17 13:00	1

Client Sample ID: PNMW-15
Date Collected: 10/10/17 15:27
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			10/23/17 17:17	1
Temperature	22.4	HF	1.0	1.0	Degrees C			10/23/17 17:17	1
Chloride	3.7		3.0	0.25	mg/L			11/04/17 13:52	1
Fluoride	0.24	J	0.50	0.060	mg/L			11/04/17 13:52	1
Sulfate	830		50	2.3	mg/L			11/04/17 18:55	10
Total Dissolved Solids (TDS)	1600		10	4.7	mg/L			10/16/17 13:00	1

Client Sample ID: PNMW-16
Date Collected: 10/10/17 17:06
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			10/23/17 17:33	1
Temperature	22.7	HF	1.0	1.0	Degrees C			10/23/17 17:33	1
Chloride	2.4	J	3.0	0.25	mg/L			11/04/17 14:09	1
Fluoride	0.23	J	0.50	0.060	mg/L			11/04/17 14:09	1
Sulfate	1100		50	2.3	mg/L			11/04/17 19:12	10
Total Dissolved Solids (TDS)	1900		10	4.7	mg/L			10/16/17 13:00	1

Client Sample ID: PNMW-1B
Date Collected: 10/11/17 12:42
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			10/23/17 17:39	1
Temperature	22.6	HF	1.0	1.0	Degrees C			10/23/17 17:39	1
Chloride	65		3.0	0.25	mg/L			11/04/17 15:16	1
Fluoride	0.83		0.50	0.060	mg/L			11/04/17 15:16	1
Sulfate	290		50	2.3	mg/L			11/04/17 19:28	10
Total Dissolved Solids (TDS)	890		10	4.7	mg/L			10/16/17 13:00	1

Client Sample ID: PNMW-2B
Date Collected: 10/11/17 11:32
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU			10/23/17 17:44	1
Temperature	22.6	HF	1.0	1.0	Degrees C			10/23/17 17:44	1
Chloride	14		3.0	0.25	mg/L			11/04/17 16:24	1
Fluoride	0.50		0.50	0.060	mg/L			11/04/17 16:24	1
Sulfate	25		5.0	0.23	mg/L			11/04/17 16:24	1
Total Dissolved Solids (TDS)	480		10	4.7	mg/L			10/16/17 13:00	1

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

TestAmerica Job ID: 280-102195-1

General Chemistry

Client Sample ID: PNMW-15D
Date Collected: 10/10/17 15:32
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.8**	**HF**	0.1	0.1	SU			10/23/17 17:49	1
Temperature	**22.5**	**HF**	1.0	1.0	Degrees C			10/23/17 17:49	1
Chloride	**3.4**		3.0	0.25	mg/L			11/04/17 17:31	1
Fluoride	**0.23**	**J**	0.50	0.060	mg/L			11/04/17 17:31	1
Sulfate	**910**		50	2.3	mg/L			11/04/17 17:48	10
Total Dissolved Solids (TDS)	**1500**		10	4.7	mg/L			10/16/17 13:00	1

Client Sample ID: PNMW-16EB
Date Collected: 10/10/17 17:30
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	**5.7**	**HF**	0.1	0.1	SU			10/31/17 14:08	1
Temperature	**21.3**	**HF**	1.0	1.0	Degrees C			10/31/17 14:08	1
Chloride	ND		3.0	0.25	mg/L			11/04/17 14:26	1
Fluoride	ND		0.50	0.060	mg/L			11/04/17 14:26	1
Sulfate	ND		5.0	0.23	mg/L			11/04/17 14:26	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/16/17 13:00	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-299216/1-A
Matrix: Water
Analysis Batch: 299409

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.0081	mg/L		10/16/17 14:00	10/17/17 18:10	1

Lab Sample ID: LCS 240-299216/2-A
Matrix: Water
Analysis Batch: 299409

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 299216

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

Lab Sample ID: 280-102195-1 MS
Matrix: Water
Analysis Batch: 299409

Client Sample ID: PNMW-13
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Boron	0.24		1.00	1.29		mg/L		105	75 - 125		

Lab Sample ID: 280-102195-1 MSD
Matrix: Water
Analysis Batch: 299409

Client Sample ID: PNMW-13
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.24		1.00	1.29		mg/L		105	75 - 125	0	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 240-299216/1-A
Matrix: Water
Analysis Batch: 299913

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.58	mg/L		10/16/17 14:00	10/19/17 22:50	1

Lab Sample ID: LCS 240-299216/3-A
Matrix: Water
Analysis Batch: 299913

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Calcium			10.0	9.77		mg/L		98	80 - 120		

Lab Sample ID: 280-102195-1 MS
Matrix: Water
Analysis Batch: 299913

Client Sample ID: PNMW-13
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Calcium	41		10.0	48.2	4	mg/L		77	75 - 125		

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

Lab Sample ID: 280-102195-1 MSD
Matrix: Water
Analysis Batch: 299913

Client Sample ID: PNMW-13
Prep Type: Total Recoverable
Prep Batch: 299216

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	41		10.0	48.5	4	mg/L		79	75 - 125	1	20

Method: 9040B - pH

Lab Sample ID: LCS 280-392430/54
Matrix: Water
Analysis Batch: 392430

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

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

Lab Sample ID: LCS 280-393537/4
Matrix: Water
Analysis Batch: 393537

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

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-394040/6
Matrix: Water
Analysis Batch: 394040

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	0.25	mg/L			11/04/17 11:38	1
Fluoride	ND		0.50	0.060	mg/L			11/04/17 11:38	1
Sulfate	ND		5.0	0.23	mg/L			11/04/17 11:38	1

Lab Sample ID: LCS 280-394040/4
Matrix: Water
Analysis Batch: 394040

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.9		mg/L		98	90 - 110
Fluoride	5.00	5.11		mg/L		102	90 - 110
Sulfate	100	98.2		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-394040/5
Matrix: Water
Analysis Batch: 394040

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	97.8		mg/L		98	90 - 110	0	10
Fluoride	5.00	5.10		mg/L		102	90 - 110	0	10
Sulfate	100	98.2		mg/L		98	90 - 110	0	10

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

Lab Sample ID: MRL 280-394040/3
Matrix: Water
Analysis Batch: 394040

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.57	J	mg/L		103	50 - 150
Fluoride	0.200	0.176	J	mg/L		88	50 - 150
Sulfate	2.50	2.62	J	mg/L		105	50 - 150

Lab Sample ID: 280-102195-5 MS
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	65		25.0	91.3		mg/L		106	80 - 120
Fluoride	0.83		5.00	5.79		mg/L		99	80 - 120

Lab Sample ID: 280-102195-5 MS
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	290		250	542		mg/L		102	80 - 120

Lab Sample ID: 280-102195-5 MSD
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	65		25.0	91.8		mg/L		108	80 - 120	1	20
Fluoride	0.83		5.00	5.89		mg/L		101	80 - 120	2	20

Lab Sample ID: 280-102195-5 MSD
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	290		250	549		mg/L		105	80 - 120	1	20

Lab Sample ID: 280-102195-6 MS
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	14		25.0	40.1		mg/L		106	80 - 120
Fluoride	0.50		5.00	5.49		mg/L		100	80 - 120
Sulfate	25		25.0	51.2		mg/L		105	80 - 120

Lab Sample ID: 280-102195-6 MSD
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	14		25.0	39.5		mg/L		104	80 - 120	1	20

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

Lab Sample ID: 280-102195-6 MSD
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.50		5.00	5.41		mg/L		98	80 - 120	1	20
Sulfate	25		25.0	51.0		mg/L		104	80 - 120	0	20

Lab Sample ID: 280-102195-5 DU
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	65		64.9		mg/L		0.07	15
Fluoride	0.83		0.829		mg/L		0.6	15

Lab Sample ID: 280-102195-5 DU
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-1B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	290		285		mg/L		0.3	15

Lab Sample ID: 280-102195-6 DU
Matrix: Water
Analysis Batch: 394040

Client Sample ID: PNMW-2B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	14		13.6		mg/L		0.06	15
Fluoride	0.50		0.492	J	mg/L		2	15
Sulfate	25		24.9		mg/L		0.5	15

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

Lab Sample ID: MB 280-391444/1
Matrix: Water
Analysis Batch: 391444

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			10/16/17 13:00	1

Lab Sample ID: LCS 280-391444/2
Matrix: Water
Analysis Batch: 391444

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids (TDS)	501	486		mg/L		97	86 - 110

QC Association Summary

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

TestAmerica Job ID: 280-102195-1

Metals

Prep Batch: 299216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total Recoverable	Water	3005A	
280-102195-2	PNMW-14	Total Recoverable	Water	3005A	
280-102195-3	PNMW-15	Total Recoverable	Water	3005A	
280-102195-4	PNMW-16	Total Recoverable	Water	3005A	
280-102195-5	PNMW-1B	Total Recoverable	Water	3005A	
280-102195-6	PNMW-2B	Total Recoverable	Water	3005A	
280-102195-7	PNMW-15D	Total Recoverable	Water	3005A	
280-102195-8	PNMW-16EB	Total Recoverable	Water	3005A	
MB 240-299216/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-299216/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-299216/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-102195-1 MS	PNMW-13	Total Recoverable	Water	3005A	
280-102195-1 MS	PNMW-13	Total Recoverable	Water	3005A	
280-102195-1 MSD	PNMW-13	Total Recoverable	Water	3005A	
280-102195-1 MSD	PNMW-13	Total Recoverable	Water	3005A	

Analysis Batch: 299409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total Recoverable	Water	6010C	299216
280-102195-2	PNMW-14	Total Recoverable	Water	6010C	299216
280-102195-3	PNMW-15	Total Recoverable	Water	6010C	299216
280-102195-4	PNMW-16	Total Recoverable	Water	6010C	299216
280-102195-5	PNMW-1B	Total Recoverable	Water	6010C	299216
280-102195-6	PNMW-2B	Total Recoverable	Water	6010C	299216
280-102195-7	PNMW-15D	Total Recoverable	Water	6010C	299216
280-102195-8	PNMW-16EB	Total Recoverable	Water	6010C	299216
MB 240-299216/1-A	Method Blank	Total Recoverable	Water	6010C	299216
LCS 240-299216/2-A	Lab Control Sample	Total Recoverable	Water	6010C	299216
280-102195-1 MS	PNMW-13	Total Recoverable	Water	6010C	299216
280-102195-1 MSD	PNMW-13	Total Recoverable	Water	6010C	299216

Analysis Batch: 299913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total Recoverable	Water	6020A	299216
280-102195-2	PNMW-14	Total Recoverable	Water	6020A	299216
280-102195-3	PNMW-15	Total Recoverable	Water	6020A	299216
280-102195-4	PNMW-16	Total Recoverable	Water	6020A	299216
280-102195-5	PNMW-1B	Total Recoverable	Water	6020A	299216
280-102195-6	PNMW-2B	Total Recoverable	Water	6020A	299216
280-102195-7	PNMW-15D	Total Recoverable	Water	6020A	299216
280-102195-8	PNMW-16EB	Total Recoverable	Water	6020A	299216
MB 240-299216/1-A	Method Blank	Total Recoverable	Water	6020A	299216
LCS 240-299216/3-A	Lab Control Sample	Total Recoverable	Water	6020A	299216
280-102195-1 MS	PNMW-13	Total Recoverable	Water	6020A	299216
280-102195-1 MSD	PNMW-13	Total Recoverable	Water	6020A	299216

General Chemistry

Analysis Batch: 391444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total/NA	Water	SM 2540C	
280-102195-2	PNMW-14	Total/NA	Water	SM 2540C	
280-102195-3	PNMW-15	Total/NA	Water	SM 2540C	
280-102195-4	PNMW-16	Total/NA	Water	SM 2540C	
280-102195-5	PNMW-1B	Total/NA	Water	SM 2540C	
280-102195-6	PNMW-2B	Total/NA	Water	SM 2540C	
280-102195-7	PNMW-15D	Total/NA	Water	SM 2540C	
280-102195-8	PNMW-16EB	Total/NA	Water	SM 2540C	
MB 280-391444/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-391444/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 392430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total/NA	Water	9040B	
280-102195-2	PNMW-14	Total/NA	Water	9040B	
280-102195-3	PNMW-15	Total/NA	Water	9040B	
280-102195-4	PNMW-16	Total/NA	Water	9040B	
280-102195-5	PNMW-1B	Total/NA	Water	9040B	
280-102195-6	PNMW-2B	Total/NA	Water	9040B	
280-102195-7	PNMW-15D	Total/NA	Water	9040B	
LCS 280-392430/54	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 393537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-8	PNMW-16EB	Total/NA	Water	9040B	
LCS 280-393537/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 394040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-1	PNMW-13	Total/NA	Water	9056A	
280-102195-2	PNMW-14	Total/NA	Water	9056A	
280-102195-3	PNMW-15	Total/NA	Water	9056A	
280-102195-3	PNMW-15	Total/NA	Water	9056A	
280-102195-4	PNMW-16	Total/NA	Water	9056A	
280-102195-4	PNMW-16	Total/NA	Water	9056A	
280-102195-5	PNMW-1B	Total/NA	Water	9056A	
280-102195-5	PNMW-1B	Total/NA	Water	9056A	
280-102195-6	PNMW-2B	Total/NA	Water	9056A	
280-102195-7	PNMW-15D	Total/NA	Water	9056A	
280-102195-7	PNMW-15D	Total/NA	Water	9056A	
280-102195-8	PNMW-16EB	Total/NA	Water	9056A	
MB 280-394040/6	Method Blank	Total/NA	Water	9056A	
LCS 280-394040/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-394040/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-394040/3	Lab Control Sample	Total/NA	Water	9056A	
280-102195-5 MS	PNMW-1B	Total/NA	Water	9056A	
280-102195-5 MS	PNMW-1B	Total/NA	Water	9056A	
280-102195-5 MSD	PNMW-1B	Total/NA	Water	9056A	
280-102195-5 MSD	PNMW-1B	Total/NA	Water	9056A	
280-102195-6 MS	PNMW-2B	Total/NA	Water	9056A	
280-102195-6 MSD	PNMW-2B	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 394040 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-102195-5 DU	PNMW-1B	Total/NA	Water	9056A	
280-102195-5 DU	PNMW-1B	Total/NA	Water	9056A	
280-102195-6 DU	PNMW-2B	Total/NA	Water	9056A	

Lab Chronicle

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

TestAmerica Job ID: 280-102195-1

Client Sample ID: PNMW-13
Date Collected: 10/11/17 10:25
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 18:19	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/19/17 22:59	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:06	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 13:19	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-14
Date Collected: 10/11/17 09:40
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:13	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/19/17 23:54	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:12	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 13:36	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-15
Date Collected: 10/10/17 15:27
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:18	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/19/17 23:58	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:17	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 13:52	JML	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	394040	11/04/17 18:55	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-16
Date Collected: 10/10/17 17:06
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:32	KLC	TAL CAN

Client Sample ID: PNMW-16

Date Collected: 10/10/17 17:06
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/20/17 00:03	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:33	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 14:09	JML	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	394040	11/04/17 19:12	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-1B

Date Collected: 10/11/17 12:42
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-5

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	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:36	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/20/17 00:07	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:39	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 15:16	JML	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	394040	11/04/17 19:28	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-2B

Date Collected: 10/11/17 11:32
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-6

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	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:41	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/20/17 00:12	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:44	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 16:24	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-15D

Date Collected: 10/10/17 15:32
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:46	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN

Lab Chronicle

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

TestAmerica Job ID: 280-102195-1

Client Sample ID: PNMW-15D

Date Collected: 10/10/17 15:32
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6020A		1			299913	10/20/17 00:16	AS1	TAL CAN
Total/NA	Analysis	9040B		1			392430	10/23/17 17:49	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 17:31	JML	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	394040	11/04/17 17:48	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Client Sample ID: PNMW-16EB

Date Collected: 10/10/17 17:30
Date Received: 10/11/17 15:00

Lab Sample ID: 280-102195-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6010C		1			299409	10/17/17 19:50	KLC	TAL CAN
Total Recoverable	Prep	3005A			50 mL	50 mL	299216	10/16/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020A		1			299913	10/20/17 00:21	AS1	TAL CAN
Total/NA	Analysis	9040B		1			393537	10/31/17 14:08	A1D	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	394040	11/04/17 14:26	JML	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	391444	10/16/17 13:00	JAP	TAL DEN

Laboratory References:

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

TAL DEN = 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

TestAmerica Job ID: 280-102195-1

Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9040B		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: K Fishburn	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-68265-23095.1
Client Contact: Anna Lundin	Phone: 208 841 9707	E-Mail: stephanie.rothmeyer@testamericainc.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: 907-644-2078(Tel)	PO #: DEN-001			
Email: anna.lundin@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)	2540C_Calcd - Total Dissolved Solids (TDS)	6020A - Calcium, 6010C - Boron	9040B - pH, 9056A_28D - Fluoride, Chloride, Sulfate	7470A - Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	D		
PNMW-13	10-11-17	1025	G	Water	N	N	X	X	X	X		
PNMW-14	10-11-17	0940	G	Water	N	N	X	X	X	X		
PNMW-15	10-10-17	1527	G	Water	N	N	X	X	X	X		
PNMW-16	10-10-17	1706	G	Water	N	N	X	X	X	X		
PNMW-1B	10-11-17	1242	G	Water	N	N	X	X	X	X		
PNMW-2B	10-11-17	1132	G	Water	N	N	X	X	X	X		
PNMW-15D	10-10-17	1532	G	Water	N	N	X	X	X	X		
PNMW-16B	10-10-17	1730	G	water	N	N	X	X	X	X		
			G									

280-102195 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
FISHBURN	10-11-17 1500	HDR INC		10-11-17 1500	TAD
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:
		5.4, +0.1, IR7 Transferred by AIR 10-11-17

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Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

15.6/C15.6

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: 280-415191.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD ELAP - A2LA		Job #: 280-102195-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/6/2017			
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 (MOD) Boron	6020A/3005A Calcium	51	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PNMW-13 (280-102195-1)	10/11/17	10:25 Mountain		Water			X	X	500	1	
PNMW-14 (280-102195-2)	10/11/17	09:40 Mountain		Water			X	X		1	
PNMW-15 (280-102195-3)	10/10/17	15:27 Mountain		Water			X	X		1	
PNMW-16 (280-102195-4)	10/10/17	17:06 Mountain		Water			X	X		1	
PNMW-1B (280-102195-5)	10/11/17	12:42 Mountain		Water			X	X		1	
PNMW-2B (280-102195-6)	10/11/17	11:32 Mountain		Water			X	X		1	
PNMW-15D (280-102195-7)	10/10/17	15:32 Mountain		Water			X	X		1	
PNMW-16EB (280-102195-8)	10/10/17	17:30 Mountain		Water			X	X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/12/17 17:00		Jerry Burns	10/13/17 0930	TA Can
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:

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 280-102195**
Canton Facility

Client TA Denver Site Name _____ Cooler unpacked by: Dewy Burns

Cooler Received on 10/13/17 Opened on 10/13/17

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

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

TestAmerica Cooler # _____ 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)

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt

IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. 15.6 °C Corrected Cooler Temp. 15.6 °C

IR GUN #36 (CF +0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN # 627 (CF -1.3°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 11-15 have been checked at the originating laboratory.		
11. Were all preserved sample(s) at the correct pH upon receipt?	Yes No	NA
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	(No) NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
15. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

pH Strip Lot# **HC697954**

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-102195-1

Login Number: 102195
List Number: 1
Creator: Gomez, Alyssa I

List Source: 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	