



HALEY & ALDRICH, INC.
6500 Rockside Road
Suite 200
Cleveland, OH 44131
216.706.1303

31 January 2018
File No. 129778-002

Westar Energy, Inc.
818 South Kansas Avenue
Topeka, Kansas 66612

Attention: Jared Morrison
Manager, Water and Waste Programs

Subject: 2017 Annual Groundwater Monitoring and Corrective Action Report for the
Bottom Ash Area 1 Impoundment/Bottom Ash Area 1 Landfill
Jeffrey Energy Center
St. Marys, Kansas

Dear Mr. Morrison:

Haley & Aldrich, Inc. is pleased to submit this Annual Groundwater Monitoring and Corrective Action Report (Annual Report) for the multi-unit groundwater monitoring system for the Bottom Ash (BA) Area 1 Impoundment/BA Area 1 Landfill at the Jeffrey Energy Center. This Annual Report was developed in accordance with the United States Environmental Protection Agency CCR Rule effective 19 October 2015 (Rule), specifically Code of Federal Regulations Title 40, subsection § 257.90(e). The Annual Report documents the design and construction of the groundwater monitoring system for the BA Area 1 Impoundment/BA Area 1 Landfill consistent with applicable sections of § 257.90 through 257.98.

This report describes activities conducted in the prior calendar year and documents compliance with the Rule. The specific requirements listed in Sections § 257.90(e)(1)-(5) of the Rule are provided in bold/italic type, followed by a short narrative describing how the Rule has been met.

Sincerely yours,
HALEY & ALDRICH, INC.

A handwritten signature in blue ink, appearing to read "Steve Putrich".

Steve Putrich, P.E.
Project Principal

A handwritten signature in blue ink, appearing to read "Mark Nicholls".

Mark Nicholls, P.G.
Lead Hydrogeologist

2017 ANNUAL GROUNDWATER MONITORING
AND CORRECTIVE ACTION REPORT
BA AREA 1 IMPOUNDMENT/BA AREA 1 LANDFILL
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Westar Energy, Inc.
Topeka, Kansas

File No. 129778-002
January 2018



Table of Contents

	Page
List of Tables	i
List of Figures	i
1. 40 CFR § 257.90 Applicability	1
1.1 40 CFR § 257.90(A)	1
1.2 40 CFR § 257.90(E)	1
1.3 40 CFR § 257.90(F)	3

Tables

Figures

List of Tables

Table No.	Title
I	Summary of Analytical Results

List of Figures

Figure No.	Title
1	Bottom Ash Area 1 Impoundment/Landfill Monitoring Well Location Map

1. 40 CFR § 257.90 Applicability

1.1 40 CFR § 257.90(a)

Except as provided for in §257.100 for inactive CCR surface impoundments, all CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under §257.90 through 257.98.

The Bottom Ash (BA) Area 1 Impoundment/BA Area 1 Landfill at the Jeffrey Energy Center (JEC), which is the coal combustion residuals (CCR) management unit addressed in this Annual Groundwater Monitoring and Corrective Action Report (Annual Report), is subject to the groundwater monitoring and corrective action requirements described under Code of Federal Regulations Title 40 (40 CFR) § 257.90 through 257.98. In particular, this document addresses the requirement for the Owner/Operator to prepare an Annual Report per § 257.90(e) (Rule). These units are managed by a multi-unit groundwater monitoring system.

1.2 40 CFR § 257.90(e)

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by §257.105(h)(1).

This Annual Report is the initial report for the JEC BA Area 1 Impoundment/BA Area 1 Landfill as required by the Rule as the groundwater monitoring system was established and certified by 17 October 2017. Prior to 17 October 2017, Westar installed a groundwater monitoring system at the BA Area 1 Impoundment/BA Area 1 Landfill consistent with § 257.91. Groundwater sampling and analysis was conducted per the requirements described in § 257.93, and the status of the groundwater monitoring program described in § 257.94 is provided in this report. This Annual Report documents the activities completed in the calendar year 2017.

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

- (1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;***

As required by § 257.90(e)(1), a map showing the locations of the CCR unit and associated upgradient and downgradient monitoring wells for the BA Area 1 Impoundment/BA Area 1 Landfill is included in this report as Figure 1. In addition, this information is presented in the CCR Groundwater Monitoring

Network Description Report prepared for Westar, which was placed in the facility's operating record by 17 October 2017 as required by § 257.105(h)(2).

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

The design and construction of the monitoring well network for the BA Area 1 Impoundment/BA Area 1 Landfill at JEC are described in the CCR Groundwater Monitoring Network Description Report dated 17 October 2017. This report was placed in the facility's operating record by 17 October 2017, as required by § 257.105(h)(2). Since the groundwater monitoring system was certified, no new monitoring wells were installed or decommissioned.

(3) In addition to all the monitoring data obtained under §257.90 through §257.98, a summary including 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 detection monitoring or assessment monitoring programs;

In accordance with § 257.94(b), eight independent samples from each background and downgradient monitoring well were collected prior to 17 October 2017. A summary table including the sample names, dates of sample collection, reason for sample collection (detection or assessment), and monitoring data obtained for the groundwater monitoring program for the BA Area 1 Impoundment/BA Area 1 Landfill is presented in Table I of this report. In 2017, the groundwater monitoring sampling and laboratory analyses were completed under the detection monitoring program.

(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

Detection monitoring was conducted in accordance with § 257.94(b), and no transitions between monitoring programs occurred for the BA Area 1 Impoundment/BA Area 1 Landfill in calendar year 2017.

(5) Other information required to be included in the annual report as specified in §257.90 through §257.98.

This initial Annual Report documents activities conducted to comply with § 257.90 through § 257.94 of the Rule. It is understood that there are supplemental references in § 257.90 through § 257.98 to information that must be placed in the Annual Report; however, none of the activities referenced as required in the Annual Report are relevant to the groundwater monitoring program for activities completed in calendar year 2017.

1.3 40 CFR § 257.90(f)

The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h).

To comply with the Rule recordkeeping requirements:

- Pursuant to § 257.105(h)(1), this Annual Report must be placed in the facility's operating record.
- Pursuant to § 257.106(h)(1), notification must be sent to the relevant State Director and/or Tribal authority within 30 days of this Annual Report being placed on the facility's operating record [§ 257.106(d)].
- Pursuant to § 257.107(h)(1), this Annual Report must be posted to the Westar CCR Website within 30 days of this Annual Report being placed on the facility's operating record [§ 257.107(d)].




TABLES

FIGURES

GIS FILE PATH: \\haleyaldrich.com\share\pfx_common\Projects\Westar\Jeffrey Energy Center (JEC)\GIS\MXDs\2018_01\JEC_BOTTOM ASH_AREA1_MW_LOCATION_MAP_REV2.mxd — USER: lbuce — LAST SAVED: 1/30/2018 5:42:40 PM

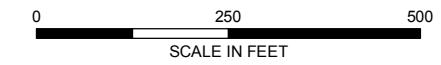


LEGEND

-  MONITORING WELL
-  PIEZOMETRIC OBSERVATION ONLY
-  BOTTOM ASH AREA 1 LIMITS OF DISPOSAL AREA

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI



HALEY ALDRICH WESTAR ENERGY
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH AREA 1
MONITORING WELL LOCATION MAP**

JANUARY 2018

FIGURE 1

November 3, 2022
Project No. 0204993-000



TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

FROM: Haley & Aldrich, Inc.
Steven F. Putrich, P.E., Principal Consultant – Engineering Principal
Mark Nicholls, P.G., Senior Associate – Senior Hydrogeologist

SUBJECT: 2017 Annual Groundwater Monitoring and Corrective Action Report Addendum
Evergy Kansas Central, Inc.
Jeffrey Energy Center
Bottom Ash Settling Area/Bottom Ash Landfill

The Evergy Kansas Central, Inc. (Evergy) Bottom Ash Settling Area/Bottom Ash Landfill (BASA/BAL) at the Jeffrey Energy Center is subject to the groundwater monitoring and corrective action requirements described under Code of Federal Regulations Title 40 (40 CFR) §257.90 through §257.98 (Rule). An Annual Groundwater Monitoring and Corrective Action (GWMCA) Report documenting the activities completed in 2017 for BASA/BAL was completed and placed in the facility's operating record on January 31, 2018, as required by the Rule. The Annual GWMCA Report contained the specific information listed in 40 CFR §257.90(e).

This report addendum has been prepared to supplement the operating record in recognition of comments received by Evergy from the U.S. Environmental Protection Agency (USEPA) on January 11, 2022. In addition to the information listed in 40 CFR §257.90(e), the USEPA indicated in their comments that the GWMCA Report should contain:

- Results of laboratory analysis of groundwater or other environmental media samples for the presence of constituents of Appendices III and IV to 40 CFR Part 257 (or of other constituents, such as those supporting characterization of site conditions that may ultimately affect a remedy);
- Required statistical analyses performed on those (laboratory analysis) results;
- Measured groundwater elevations; and
- Calculated groundwater flow rate and direction.

While this information is not specifically referred to in 40 CFR §257.90(e) for inclusion in the GWMCA Reports, it has been routinely collected and maintained in Evergy's files and is being provided in the attachments to this addendum. The applicable laboratory analysis reports for baseline sampling events in 2016 and 2017 are included in Attachment 1. Since no statistical analyses were completed in 2017, there were no analyses to report in this addendum. For each of the 2017 sampling events, the measured groundwater elevations, with calculated groundwater flow rates and directions, have been included in Attachment 2.

The Attachments to this addendum are described below:

- Attachment 1 – Laboratory Analytical Reports: Includes laboratory data packages with supporting information such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation. The laboratory data packages for the baseline sampling events completed in August, September, November, and December 2016, and February, April, May, June, July, and August 2017 are provided.
 - Groundwater sampling and analysis was completed at monitoring well MW-BAA-4 during baseline groundwater monitoring; however, the monitoring well was not included in the final certified network design established in October 2017. Therefore, MW-BAA-4 laboratory analytical data is included in many of these laboratory analytical reports.
 - Since groundwater samples were collected from multiple units during each baseline sampling event, analytical data included in these laboratory analytical reports may include data from monitoring wells not associated with the BASA/BAL.
- Attachment 2 – Groundwater Potentiometric Maps: Includes the measured groundwater elevations at each well and the generalized groundwater flow direction and calculated flow rate. Maps for the sampling events completed in August, September, November, and December 2016, and February, April, May, June, and August 2017 are provided.

ATTACHMENT 1
Laboratory Analytical Reports

ATTACHMENT 1-1
August 2016 Sampling Event
Laboratory Analytical Report

September 20, 2016

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60226548

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 27, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60226548001	FGD3-082516	Water	08/25/16 09:46	08/27/16 06:15
60226548002	FGD4-082516	Water	08/25/16 11:46	08/27/16 06:15
60226548003	BAA6-082516	Water	08/25/16 13:43	08/27/16 06:15
60226548004	BAA3-082616	Water	08/26/16 10:58	08/27/16 06:15
60226548005	BAA4-082616	Water	08/26/16 12:07	08/27/16 06:15
60226548006	BAA2-082516	Water	08/25/16 15:52	08/27/16 06:15
60226548007	DUP-082516	Water	08/25/16 08:00	08/27/16 06:15

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60226548001	FGD3-082516	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
60226548002	FGD4-082516	EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
60226548003	BAA6-082516	SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60226548004	BAA3-082616	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
60226548005	BAA4-082616	EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
60226548005	BAA4-082616	EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		EPA 200.7	NDJ	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60226548006	BAA2-082516	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
60226548007	DUP-082516	EPA 300.0	OL	3	PASI-K
		EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	AB1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HAC	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 444593

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60226362001,60226362002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1818091)
 - Calcium
- MSD (Lab ID: 1818092)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 444573

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60226362001,60226548004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1818005)
 - Mercury
- MSD (Lab ID: 1818006)
 - Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Batch Comments:

The MB for Ra-228 batch 31271 has an activity equal to the required RL of 1.0 pCi/L. Data is all reportable w/narration.

- QC Batch: 232375

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA2-082516 (Lab ID: 60226548006)
- BAA3-082616 (Lab ID: 60226548004)
- BAA4-082616 (Lab ID: 60226548005)
- BAA6-082516 (Lab ID: 60226548003)
- DUP-082516 (Lab ID: 60226548007)
- FGD3-082516 (Lab ID: 60226548001)
- FGD4-082516 (Lab ID: 60226548002)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: September 20, 2016

General Information:

7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 445893

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60226890002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1822829)
- Chloride

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: FGD3-082516		Lab ID: 60226548001	Collected: 08/25/16 09:46	Received: 08/27/16 06:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.23	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:35	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:35	7440-41-7	
Boron, Total Recoverable	0.13	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:35	7440-42-8	
Calcium, Total Recoverable	142	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:35	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:35	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:35	7439-92-1	
Lithium	0.015	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:35	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	08/30/16 13:51	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7440-48-4	
Molybdenum, Total Recoverable	0.0071	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:51	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:27	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	692	mg/L	5.0	1		08/31/16 08:26		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		08/29/16 09:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	52.4	mg/L	5.0	5		09/08/16 20:29	16887-00-6	
Fluoride	0.25	mg/L	0.20	1		09/07/16 17:08	16984-48-8	
Sulfate	213	mg/L	20.0	20		09/08/16 21:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: FGD4-082516		Lab ID: 60226548002	Collected: 08/25/16 11:46	Received: 08/27/16 06:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.064	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:38	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:38	7440-41-7	
Boron, Total Recoverable	0.30	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:38	7440-42-8	
Calcium, Total Recoverable	166	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:38	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:38	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:38	7439-92-1	
Lithium	0.013	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:38	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	08/30/16 13:55	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7440-48-4	
Molybdenum, Total Recoverable	0.0046	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:55	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:29	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	831	mg/L	5.0	1		08/31/16 08:27		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		08/29/16 09:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	71.8	mg/L	5.0	5		09/08/16 22:24	16887-00-6	
Fluoride	0.31	mg/L	0.20	1		09/07/16 17:23	16984-48-8	
Sulfate	331	mg/L	50.0	50		09/08/16 22:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA6-082516		Lab ID: 60226548003	Collected: 08/25/16 13:43	Received: 08/27/16 06:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.039	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:40	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:40	7440-41-7	
Boron, Total Recoverable	5.8	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:40	7440-42-8	
Calcium, Total Recoverable	495	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:40	7440-70-2	
Chromium, Total Recoverable	0.0060	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:40	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:40	7439-92-1	
Lithium	0.16	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:40	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:59	7440-36-0	
Arsenic, Total Recoverable	0.0037	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:12	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	09/01/16 11:12	7440-43-9	
Cobalt, Total Recoverable	0.0016	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:12	7440-48-4	
Molybdenum, Total Recoverable	0.0090	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:12	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:12	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 13:59	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:31	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3210	mg/L	5.0	1		08/31/16 08:28		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		08/29/16 09:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	288	mg/L	20.0	20		09/08/16 22:53	16887-00-6	
Fluoride	0.88	mg/L	0.20	1		09/07/16 17:37	16984-48-8	
Sulfate	1790	mg/L	200	200		09/08/16 23:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA3-082616	Lab ID: 60226548004	Collected: 08/26/16 10:58		Received: 08/27/16 06:15		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.050	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:42	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:42	7440-41-7	
Boron, Total Recoverable	2.4	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:42	7440-42-8	
Calcium, Total Recoverable	526	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:42	7440-70-2	
Chromium, Total Recoverable	0.011	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:42	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:42	7439-92-1	
Lithium	0.10	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:42	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:04	7440-36-0	
Arsenic, Total Recoverable	0.0022	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:16	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	09/01/16 11:16	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:16	7440-48-4	
Molybdenum, Total Recoverable	0.0026	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:16	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:16	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:04	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:33	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3250	mg/L	5.0	1		08/31/16 08:31		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		08/29/16 09:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	146	mg/L	20.0	20		09/08/16 23:21	16887-00-6	
Fluoride	0.97	mg/L	0.20	1		09/07/16 17:51	16984-48-8	
Sulfate	1900	mg/L	200	200		09/08/16 23:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA4-082616		Lab ID: 60226548005		Collected: 08/26/16 12:07		Received: 08/27/16 06:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.032	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:45	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:45	7440-41-7		
Boron, Total Recoverable	0.91	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:45	7440-42-8		
Calcium, Total Recoverable	403	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:45	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:45	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:45	7439-92-1		
Lithium	0.015	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:45	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7440-36-0		
Arsenic, Total Recoverable	0.0065	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	09/01/16 11:20	7440-43-9		
Cobalt, Total Recoverable	0.027	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7440-48-4		
Molybdenum, Total Recoverable	0.11	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:20	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:42	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	4070	mg/L	5.0	1		08/31/16 08:32			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.0	Std. Units	0.10	1		08/30/16 12:35		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	177	mg/L	20.0	20		09/08/16 23:50	16887-00-6		
Fluoride	0.26	mg/L	0.20	1		09/07/16 18:06	16984-48-8		
Sulfate	2310	mg/L	200	200		09/09/16 00:05	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA2-082516		Lab ID: 60226548006		Collected: 08/25/16 15:52		Received: 08/27/16 06:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.067	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:47	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:47	7440-41-7		
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:47	7440-42-8		
Calcium, Total Recoverable	224	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:47	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:47	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:47	7439-92-1		
Lithium	0.013	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:47	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:22	7440-36-0		
Arsenic, Total Recoverable	0.0059	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:25	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	09/01/16 11:25	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:25	7440-48-4		
Molybdenum, Total Recoverable	0.051	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:25	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:25	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:22	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:44	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1510	mg/L	5.0	1		08/31/16 08:28			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.3	Std. Units	0.10	1		08/29/16 09:30		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	163	mg/L	20.0	20		09/09/16 00:19	16887-00-6		
Fluoride	0.44	mg/L	0.20	1		09/07/16 18:20	16984-48-8		
Sulfate	783	mg/L	100	100		09/09/16 00:33	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: DUP-082516		Lab ID: 60226548007	Collected: 08/25/16 08:00	Received: 08/27/16 06:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.059	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:49	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 12:49	7440-41-7	
Boron, Total Recoverable	1.4	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:49	7440-42-8	
Calcium, Total Recoverable	234	mg/L	0.10	1	08/29/16 16:30	08/30/16 12:49	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:49	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/16 16:30	08/30/16 12:49	7439-92-1	
Lithium	0.012	mg/L	0.010	1	08/29/16 16:30	08/30/16 12:49	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:26	7440-36-0	
Arsenic, Total Recoverable	0.0063	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:29	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/16 16:30	09/01/16 11:29	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:29	7440-48-4	
Molybdenum, Total Recoverable	0.056	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:29	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	09/01/16 11:29	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/16 16:30	08/30/16 14:26	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.20	ug/L	0.20	1	08/29/16 15:05	08/30/16 11:47	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1560	mg/L	5.0	1		08/31/16 08:29		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		08/29/16 09:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	169	mg/L	20.0	20		09/09/16 09:48	16887-00-6	
Fluoride	0.43	mg/L	0.20	1		09/07/16 18:35	16984-48-8	
Sulfate	868	mg/L	100	100		09/09/16 10:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 444573 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

METHOD BLANK: 1818003 Matrix: Water
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	08/30/16 10:58	

LABORATORY CONTROL SAMPLE: 1818004

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1818005 1818006

Parameter	Units	60226362001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.20	5	5	3.2	3.1	63	63	70-130	0	20	M1

MATRIX SPIKE SAMPLE: 1818007

Parameter	Units	60226548004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	3.8	76	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch:	444593	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

METHOD BLANK:	1818089	Matrix:	Water
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.010	0.010	08/30/16 12:13	
Beryllium	mg/L	<0.0010	0.0010	08/30/16 12:13	
Boron	mg/L	<0.10	0.10	08/30/16 12:13	
Calcium	mg/L	<0.10	0.10	08/30/16 12:13	
Chromium	mg/L	<0.0050	0.0050	08/30/16 12:13	
Lead	mg/L	<0.0050	0.0050	08/30/16 12:13	
Lithium	mg/L	<0.010	0.010	08/30/16 12:13	

LABORATORY CONTROL SAMPLE: 1818090

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.1	107	85-115	
Beryllium	mg/L	1	1.1	108	85-115	
Boron	mg/L	1	1.0	105	85-115	
Calcium	mg/L	10	10.6	106	85-115	
Chromium	mg/L	1	1.1	106	85-115	
Lead	mg/L	1	1.1	106	85-115	
Lithium	mg/L	1	1.1	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1818091 1818092

Parameter	Units	60226362001		1818092		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Barium	mg/L	0.027	1	1	1.1	1.1	107	106	70-130	1	20
Beryllium	mg/L	<0.0010	1	1	1.1	1.1	108	107	70-130	1	20
Boron	mg/L	3.5	1	1	4.7	4.7	114	118	70-130	1	20
Calcium	mg/L	301	10	10	315	314	144	132	70-130	0	20 M1
Chromium	mg/L	<0.0050	1	1	1.0	1.0	104	103	70-130	0	20
Lead	mg/L	<0.0050	1	1	0.98	0.97	98	97	70-130	1	20
Lithium	mg/L	0.014	1	1	1.2	1.1	115	113	70-130	1	20

MATRIX SPIKE SAMPLE: 1818093

Parameter	Units	60226362002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.29	1	1.4	107	70-130	
Beryllium	mg/L	<0.0010	1	1.1	108	70-130	
Boron	mg/L	0.12	1	1.2	107	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

MATRIX SPIKE SAMPLE:		1818093					
Parameter	Units	60226362002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	95.7	10	107	114	70-130	
Chromium	mg/L	<0.0050	1	1.0	104	70-130	
Lead	mg/L	<0.0050	1	1.0	102	70-130	
Lithium	mg/L	0.015	1	1.1	108	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 444594 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

METHOD BLANK: 1818095 Matrix: Water
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/30/16 13:06	
Arsenic	mg/L	<0.0010	0.0010	08/30/16 13:06	
Cadmium	mg/L	<0.00050	0.00050	08/30/16 13:06	
Cobalt	mg/L	<0.0010	0.0010	08/30/16 13:06	
Molybdenum	mg/L	<0.0010	0.0010	08/30/16 13:06	
Selenium	mg/L	<0.0010	0.0010	08/30/16 13:06	
Thallium	mg/L	<0.0010	0.0010	08/30/16 13:06	

LABORATORY CONTROL SAMPLE: 1818096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.041	102	85-115	
Arsenic	mg/L	.04	0.041	103	85-115	
Cadmium	mg/L	.04	0.041	102	85-115	
Cobalt	mg/L	.04	0.041	103	85-115	
Molybdenum	mg/L	.04	0.042	106	85-115	
Selenium	mg/L	.04	0.041	103	85-115	
Thallium	mg/L	.04	0.039	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1818097 1818098

Parameter	Units	60226362003		1818098		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	<0.0010	.04	.04	0.040	0.041	99	102	70-130	3	20
Arsenic	mg/L	<0.0010	.04	.04	0.041	0.042	101	104	70-130	3	20
Cadmium	mg/L	<0.00050	.04	.04	0.039	0.040	97	100	70-130	3	20
Cobalt	mg/L	0.0011	.04	.04	0.040	0.041	97	99	70-130	2	20
Molybdenum	mg/L	0.0047	.04	.04	0.049	0.051	112	115	70-130	2	20
Selenium	mg/L	<0.0010	.04	.04	0.039	0.041	96	101	70-130	5	20
Thallium	mg/L	<0.0010	.04	.04	0.040	0.041	99	103	70-130	3	20

MATRIX SPIKE SAMPLE: 1818099

Parameter	Units	60226362004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.041	102	70-130	
Arsenic	mg/L	<0.0010	.04	0.041	102	70-130	
Cadmium	mg/L	<0.00050	.04	0.040	100	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

MATRIX SPIKE SAMPLE:		1818099					
Parameter	Units	60226362004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.041	99	70-130	
Molybdenum	mg/L	0.0014	.04	0.047	114	70-130	
Selenium	mg/L	<0.0010	.04	0.040	99	70-130	
Thallium	mg/L	<0.0010	.04	0.041	101	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 444839 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

METHOD BLANK: 1818813 Matrix: Water
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/31/16 08:25	

LABORATORY CONTROL SAMPLE: 1818814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	950	95	80-120	

SAMPLE DUPLICATE: 1818815

Parameter	Units	60226548001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	692	694	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 444465 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548006, 60226548007

SAMPLE DUPLICATE: 1817774

Parameter	Units	60226402001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.8	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 444645 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60226548005

SAMPLE DUPLICATE: 1818235

Parameter	Units	60226548005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch:	445543	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

METHOD BLANK:	1821465	Matrix:	Water
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	09/07/16 10:05	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.6	103	90-110	

Parameter	Units	1821467		1821468		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60226141001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Fluoride	mg/L	0.64	2.5	2.5	3.1	3.1	96	99	80-120	2	15

Parameter	Units	60226141002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.29	2.5	2.7	95	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 445718 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006

METHOD BLANK: 1822161 Matrix: Water
 Associated Lab Samples: 60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/08/16 20:00	
Sulfate	mg/L	<1.0	1.0	09/08/16 20:00	

LABORATORY CONTROL SAMPLE: 1822162

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1822163 1822164

Parameter	Units	60226548001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	52.4	25	25	76.7	77.4	97	100	80-120	1	15	
Sulfate	mg/L	213	100	100	318	317	104	104	80-120	0	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch: 445893	Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0	Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60226548007	

METHOD BLANK: 1822826 Matrix: Water

Associated Lab Samples: 60226548007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/09/16 09:11	
Sulfate	mg/L	<1.0	1.0	09/09/16 09:11	

LABORATORY CONTROL SAMPLE: 1822827

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	97	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1822828 1822829

Parameter	Units	60226890002		1822829		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	238	100	100	337	99	122	80-120	7	15	M1
Sulfate	mg/L	171	100	100	266	95	111	80-120	6	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: FGD3-082516 **Lab ID: 60226548001** Collected: 08/25/16 09:46 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.622 ± 0.651 (1.02) C:NA T:75%	pCi/L	09/19/16 13:11	13982-63-3	
Radium-228	EPA 904.0	0.726 ± 0.547 (1.08) C:68% T:70%	pCi/L	09/14/16 22:13	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: FGD4-082516 **Lab ID: 60226548002** Collected: 08/25/16 11:46 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.388 ± 0.459 (0.721) C:NA T:74%	pCi/L	09/19/16 12:58	13982-63-3	
Radium-228	EPA 904.0	0.786 ± 0.561 (1.09) C:73% T:69%	pCi/L	09/14/16 22:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA6-082516 **Lab ID: 60226548003** Collected: 08/25/16 13:43 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.128 ± 0.355 (0.688) C:NA T:88%	pCi/L	09/19/16 13:21	13982-63-3	
Radium-228	EPA 904.0	4.56 ± 1.14 (1.06) C:68% T:72%	pCi/L	09/14/16 22:13	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA3-082616 **Lab ID: 60226548004** Collected: 08/26/16 10:58 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.914 ± 0.669 (0.921) C:NA T:82%	pCi/L	09/19/16 13:33	13982-63-3	
Radium-228	EPA 904.0	2.09 ± 0.744 (1.09) C:72% T:66%	pCi/L	09/14/16 22:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA4-082616 **Lab ID: 60226548005** Collected: 08/26/16 12:07 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.167 ± 0.382 (0.227) C:NA T:71%	pCi/L	09/19/16 13:21	13982-63-3	
Radium-228	EPA 904.0	0.118 ± 0.422 (0.953) C:74% T:70%	pCi/L	09/14/16 22:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: BAA2-082516 **Lab ID: 60226548006** Collected: 08/25/16 15:52 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.717 ± 0.611 (0.858) C:NA T:76%	pCi/L	09/19/16 13:01	13982-63-3	
Radium-228	EPA 904.0	1.09 ± 0.614 (1.13) C:73% T:66%	pCi/L	09/14/16 22:37	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Sample: DUP-082516 **Lab ID: 60226548007** Collected: 08/25/16 08:00 Received: 08/27/16 06:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.602 ± 0.423 (0.204) C:NA T:74%	pCi/L	09/19/16 13:32	13982-63-3	
Radium-228	EPA 904.0	1.81 ± 0.821 (1.41) C:69% T:59%	pCi/L	09/14/16 22:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch:	232375	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

METHOD BLANK:	1138913	Matrix:	Water
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.00 ± 0.449 (0.751) C:79% T:86%	pCi/L	09/14/16 22:12	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

QC Batch:	232372	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

METHOD BLANK:	1138901	Matrix:	Water
Associated Lab Samples:	60226548001, 60226548002, 60226548003, 60226548004, 60226548005, 60226548006, 60226548007		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.282 (0.456) C:NA T:99%	pCi/L	09/19/16 13:09	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: 232375

[1] The MB for Ra-228 batch 31271 has an activity equal to the required RL of 1.0 pCi/L. Data is all reportable w/narration.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60226548001	FGD3-082516	EPA 200.7	444593	EPA 200.7	444654
60226548002	FGD4-082516	EPA 200.7	444593	EPA 200.7	444654
60226548003	BAA6-082516	EPA 200.7	444593	EPA 200.7	444654
60226548004	BAA3-082616	EPA 200.7	444593	EPA 200.7	444654
60226548005	BAA4-082616	EPA 200.7	444593	EPA 200.7	444654
60226548006	BAA2-082516	EPA 200.7	444593	EPA 200.7	444654
60226548007	DUP-082516	EPA 200.7	444593	EPA 200.7	444654
60226548001	FGD3-082516	EPA 200.8	444594	EPA 200.8	444657
60226548002	FGD4-082516	EPA 200.8	444594	EPA 200.8	444657
60226548003	BAA6-082516	EPA 200.8	444594	EPA 200.8	444657
60226548004	BAA3-082616	EPA 200.8	444594	EPA 200.8	444657
60226548005	BAA4-082616	EPA 200.8	444594	EPA 200.8	444657
60226548006	BAA2-082516	EPA 200.8	444594	EPA 200.8	444657
60226548007	DUP-082516	EPA 200.8	444594	EPA 200.8	444657
60226548001	FGD3-082516	EPA 245.1	444573	EPA 245.1	444600
60226548002	FGD4-082516	EPA 245.1	444573	EPA 245.1	444600
60226548003	BAA6-082516	EPA 245.1	444573	EPA 245.1	444600
60226548004	BAA3-082616	EPA 245.1	444573	EPA 245.1	444600
60226548005	BAA4-082616	EPA 245.1	444573	EPA 245.1	444600
60226548006	BAA2-082516	EPA 245.1	444573	EPA 245.1	444600
60226548007	DUP-082516	EPA 245.1	444573	EPA 245.1	444600
60226548001	FGD3-082516	EPA 903.1	232372		
60226548002	FGD4-082516	EPA 903.1	232372		
60226548003	BAA6-082516	EPA 903.1	232372		
60226548004	BAA3-082616	EPA 903.1	232372		
60226548005	BAA4-082616	EPA 903.1	232372		
60226548006	BAA2-082516	EPA 903.1	232372		
60226548007	DUP-082516	EPA 903.1	232372		
60226548001	FGD3-082516	EPA 904.0	232375		
60226548002	FGD4-082516	EPA 904.0	232375		
60226548003	BAA6-082516	EPA 904.0	232375		
60226548004	BAA3-082616	EPA 904.0	232375		
60226548005	BAA4-082616	EPA 904.0	232375		
60226548006	BAA2-082516	EPA 904.0	232375		
60226548007	DUP-082516	EPA 904.0	232375		
60226548001	FGD3-082516	SM 2540C	444839		
60226548002	FGD4-082516	SM 2540C	444839		
60226548003	BAA6-082516	SM 2540C	444839		
60226548004	BAA3-082616	SM 2540C	444839		
60226548005	BAA4-082616	SM 2540C	444839		
60226548006	BAA2-082516	SM 2540C	444839		
60226548007	DUP-082516	SM 2540C	444839		
60226548001	FGD3-082516	SM 4500-H+B	444465		
60226548002	FGD4-082516	SM 4500-H+B	444465		
60226548003	BAA6-082516	SM 4500-H+B	444465		
60226548004	BAA3-082616	SM 4500-H+B	444465		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60226548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60226548005	BAA4-082616	SM 4500-H+B	444645		
60226548006	BAA2-082516	SM 4500-H+B	444465		
60226548007	DUP-082516	SM 4500-H+B	444465		
60226548001	FGD3-082516	EPA 300.0	445543		
60226548001	FGD3-082516	EPA 300.0	445718		
60226548002	FGD4-082516	EPA 300.0	445543		
60226548002	FGD4-082516	EPA 300.0	445718		
60226548003	BAA6-082516	EPA 300.0	445543		
60226548003	BAA6-082516	EPA 300.0	445718		
60226548004	BAA3-082616	EPA 300.0	445543		
60226548004	BAA3-082616	EPA 300.0	445718		
60226548005	BAA4-082616	EPA 300.0	445543		
60226548005	BAA4-082616	EPA 300.0	445718		
60226548006	BAA2-082516	EPA 300.0	445543		
60226548006	BAA2-082516	EPA 300.0	445718		
60226548007	DUP-082516	EPA 300.0	445543		
60226548007	DUP-082516	EPA 300.0	445893		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



Sample Condition Upon Receipt

WO#: 60226548



60226548

Client Name: Water Energy

Optional
Proj Due Date:
Proj Name:

Courier: FedEx [] UPS [] VIA [x] Clay [] PEX [] ECI [] Pace [] Other [] Client []

Tracking #: Pace Shipping Label Used? Yes [] No [x]

Custody Seal on Cooler/Box Present: Yes [x] No [] Seals intact: Yes [x] No []

Packing Material: Bubble Wrap [] Bubble Bags [] Foam [] None [x] Other []

Thermometer Used: T-266 / T-239 Type of Ice: Wet [x] Blue [] None [] Samples received on ice, cooling process has begun.

Cooler Temperature: 1-7/1-8

Date and initials of person examining contents: pvb/27/16

Temperature should be above freezing to 6°C

Table with 18 rows of inspection items and checkboxes. Items include Chain of Custody, Short Hold Time analyses, Rush Turn Around Time, etc.

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review:



Date:

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Page:	of
-------	----

Section A Required Client Information: Company: WESTAR ENERGY Address: 818 Kansas Ave Topeka, KS 66612 Email To: brandon.l.griffin@westarenergy.com Phone: (785) 575-8135 Fax: Requested Due Date/TAT: 7 DAY	Section B Required Project Information: Report To: Brandon Griffin Copy To: Jared Morrison, Heath Horny Purchase Order No.: Project Name: JEC CCR Groundwater Project Number:	Section C Invoice Information: Attention: Jared Morrison Company Name: WESTAR ENERGY Address: SEE SECTION A Pace Quote Reference: Pace Project Manager: Heather Wilson, 913-563-1407 Pace Profile #: 9657, 1	REGULATORY AGENCY <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER Site Location STATE: <u>KS</u>
---	--	--	--

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
							Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other		200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, F, I, SO ₄	4500 H+B	2540C TDS	Radium 226	Radium 228								
			COMPOSITE START																							COMPOSITE END/GRAB					
			DATE	TIME																						DATE	TIME				
1	FGD3-082516	WTG			8/25/16 0946	4	1	3														60226548									
2	FGD4-082516	WTG			8/25/16 1148	4	1	3																							
3	BAA6-082516	WTG			8/25/16 1343	4	1	3																							
4	BAA3-082616	WTG			8/26/16 1058	4	1	3																							
5	BAA4-082616	WTG			8/26/16 1207	4	1	3																							
6	BAA2-082516	WTG			8/25/16 1552	4	1	3																							
7																															
8																															
9																															
10																															
11																															
12	DUP-082516	WTG			8/25/16 0800	4	1	3																							
ADDITIONAL COMMENTS			RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS																				
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li			B/G Westar		08/26/16	1300	Jared Morrison		8/27/16	0615	1-7	X	X	X																	
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl											1-8	X	X	X																	

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Brandon Griffin						
SIGNATURE of SAMPLER: B/G						

Chain of Custody

WO#: 30194564



Workorder: 60226548

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 8/27/2016 Results Requested By: 9/21/2016

Report To		Subcontract To				Requested Analysis										LAB USE ONLY					
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600																			
						Preserved Containers				Radium 226 & 228											
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Bp/IN															
1	FGD3-082516	PS	8/25/2016 09:46	60226548001	Water	2												001			
2	FGD4-082516	PS	8/25/2016 11:41	60226548002	Water	2												002			
3	BAA6-082516	PS	8/25/2016 13:43	60226548003	Water	2												003			
4	BAA3-082616	PS	8/26/2016 10:58	60226548004	Water	2												004			
5	BAA4-082616	PS	8/26/2016 12:07	60226548005	Water	2												005			
6	BAA2-082516	PS	8/25/2016 15:52	60226548006	Water	2												006			
7	DUP-082516	PS	8/25/2016 08:00	60226548007	Water	2												007			
												Comments									
Transfers	Released By	Date/Time	Received	Date/Time																	
1	<i>[Signature]</i>	8/29/16 17:00	<i>[Signature]</i>	8-30-16 9:50																	
2																					
3																					
Cooler Temperature on Receipt		N/A°C	Custody Seal		Y or N	Received on Ice		Y or N	Samples Intact										Y or N		

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30194564



Client Name: Pace Kansas Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and initials of person examining contents: BLM 8-30-16

Comments:	Yes	No	N/A	
Chain of Custody Present:	/	/		1.
Chain of Custody Filled Out:	/	/		2.
Chain of Custody Relinquished:	/	/		3.
Sampler Name & Signature on COC:	/	/		4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: <u>Wt</u>	/	/		5.
Samples Arrived within Hold Time:	/	/		6.
Short Hold Time Analysis (<72hr remaining):	/	/		7.
Rush Turn Around Time Requested:	/	/		8.
Sufficient Volume:	/	/		9.
Correct Containers Used: -Pace Containers Used:	/	/		10.
Containers Intact:	/	/		11.
Filtered volume received for Dissolved tests All containers needing preservation have been checked.	/	/	/	12.
All containers needing preservation are found to be in compliance with EPA recommendation.	/	/		13.
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>BLM</u> Date/time of preservation: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	14.
Trip Blank Present:			/	15.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr	/	/		Initial when completed: <u>BLM</u> Date: <u>8-30-16</u>

Client Notification/ Resolution:
 Person Contacted: _____ Date/Time: _____ Contacted By: _____
 Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-2
September 2016 Sampling Event
Laboratory Analytical Report

October 18, 2016

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60228378

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on September 23, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Emily Webb for
Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60228378001	BAA6-092216	Water	09/22/16 08:26	09/23/16 06:55
60228378002	BAA4-092216	Water	09/22/16 09:55	09/23/16 06:55
60228378003	BAA3-092216	Water	09/22/16 11:03	09/23/16 06:55
60228378004	BAA2-092216	Water	09/22/16 12:25	09/23/16 06:55
60228378005	FGD1-092216	Water	09/22/16 13:30	09/23/16 06:55
60228378006	DUP-092216	Water	09/22/16 18:00	09/23/16 06:55

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60228378001	BAA6-092216	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
60228378002	BAA4-092216	EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
60228378003	BAA3-092216	SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60228378004	BAA2-092216	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
60228378005	FGD1-092216	EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		EPA 904.0	JLW	1	PASI-PA
		EPA 245.1	NDJ	1	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60228378006	DUP-092216	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 448189

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60228378001,60228510003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1833593)
 - Calcium
- MSD (Lab ID: 1833594)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 447972

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60228265001,60228265002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1832814)
- Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA2-092216 (Lab ID: 60228378004)
- BAA3-092216 (Lab ID: 60228378003)
- BAA4-092216 (Lab ID: 60228378002)
- BAA6-092216 (Lab ID: 60228378001)
- DUP-092216 (Lab ID: 60228378006)
- FGD1-092216 (Lab ID: 60228378005)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: October 18, 2016

General Information:

6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 450603

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60228378001,60228378002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1843930)
 - Fluoride
- MSD (Lab ID: 1843931)
 - Fluoride

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA6-092216		Lab ID: 60228378001		Collected: 09/22/16 08:26		Received: 09/23/16 06:55		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.022	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:00	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:00	7440-41-7		
Boron, Total Recoverable	4.0	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:00	7440-42-8		
Calcium, Total Recoverable	478	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:00	7440-70-2	M1	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:00	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:00	7439-92-1		
Lithium	0.10	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:00	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7440-36-0		
Arsenic, Total Recoverable	0.0013	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 21:54	7440-43-9		
Cobalt, Total Recoverable	0.0012	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7440-48-4		
Molybdenum, Total Recoverable	0.0065	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:54	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:17	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3330	mg/L	5.0	1		09/26/16 16:03			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.1	Std. Units	0.10	1		10/01/16 10:30		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	233	mg/L	20.0	20		10/15/16 13:39	16887-00-6		
Fluoride	0.51	mg/L	0.20	1		10/14/16 18:38	16984-48-8	M1	
Sulfate	1840	mg/L	200	200		10/15/16 14:22	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA4-092216	Lab ID: 60228378002	Collected: 09/22/16 09:55		Received: 09/23/16 06:55		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.032	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:07	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:07	7440-41-7	
Boron, Total Recoverable	0.91	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:07	7440-42-8	
Calcium, Total Recoverable	404	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:07	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:07	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:07	7439-92-1	
Lithium	0.018	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:07	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7440-36-0	
Arsenic, Total Recoverable	0.0080	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 21:58	7440-43-9	
Cobalt, Total Recoverable	0.033	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7440-48-4	
Molybdenum, Total Recoverable	0.12	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 21:58	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:20	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	4090	mg/L	5.0	1		09/26/16 16:04		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		10/01/16 10:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	177	mg/L	20.0	20		10/15/16 15:33	16887-00-6	
Fluoride	0.34	mg/L	0.20	1		10/14/16 19:20	16984-48-8	
Sulfate	2220	mg/L	200	200		10/15/16 15:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA3-092216	Lab ID: 60228378003	Collected: 09/22/16 11:03	Received: 09/23/16 06:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.025	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:14	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:14	7440-41-7	
Boron, Total Recoverable	2.3	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:14	7440-42-8	
Calcium, Total Recoverable	496	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:14	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:14	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:14	7439-92-1	
Lithium	0.10	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:14	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7440-36-0	
Arsenic, Total Recoverable	0.0014	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 22:11	7440-43-9	
Cobalt, Total Recoverable	0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7440-48-4	
Molybdenum, Total Recoverable	0.0031	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:11	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:22	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3110	mg/L	5.0	1		09/26/16 16:04		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		10/01/16 10:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	154	mg/L	20.0	20		10/15/16 16:01	16887-00-6	
Fluoride	1.0	mg/L	0.20	1		10/14/16 19:49	16984-48-8	
Sulfate	2020	mg/L	200	200		10/15/16 16:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA2-092216		Lab ID: 60228378004		Collected: 09/22/16 12:25		Received: 09/23/16 06:55		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.053	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:17	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:17	7440-41-7		
Boron, Total Recoverable	1.0	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:17	7440-42-8		
Calcium, Total Recoverable	181	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:17	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:17	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:17	7439-92-1		
Lithium	0.020	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:17	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7440-36-0		
Arsenic, Total Recoverable	0.0055	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 22:16	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7440-48-4		
Molybdenum, Total Recoverable	0.041	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:16	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:24	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1340	mg/L	5.0	1		09/26/16 16:05			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.5	Std. Units	0.10	1		10/01/16 10:30		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	133	mg/L	10.0	10		10/15/16 16:29	16887-00-6		
Fluoride	0.52	mg/L	0.20	1		10/14/16 20:03	16984-48-8		
Sulfate	658	mg/L	100	100		10/15/16 16:43	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: FGD1-092216		Lab ID: 60228378005	Collected: 09/22/16 13:30	Received: 09/23/16 06:55	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.28	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:19	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:19	7440-41-7	
Boron, Total Recoverable	0.11	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:19	7440-42-8	
Calcium, Total Recoverable	90.4	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:19	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:19	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:19	7439-92-1	
Lithium	0.014	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:19	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 22:20	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7440-48-4	
Molybdenum, Total Recoverable	0.0013	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:20	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:26	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	507	mg/L	5.0	1		09/26/16 16:05		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		10/01/16 10:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	46.5	mg/L	5.0	5		10/15/16 16:58	16887-00-6	
Fluoride	0.33	mg/L	0.20	1		10/14/16 20:17	16984-48-8	
Sulfate	93.9	mg/L	5.0	5		10/15/16 16:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: DUP-092216	Lab ID: 60228378006	Collected: 09/22/16 18:00	Received: 09/23/16 06:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.025	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:21	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	09/30/16 16:21	7440-41-7	
Boron, Total Recoverable	2.8	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:21	7440-42-8	
Calcium, Total Recoverable	395	mg/L	0.10	1	09/27/16 15:20	09/30/16 16:21	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:21	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	09/27/16 15:20	09/30/16 16:21	7439-92-1	
Lithium	0.082	mg/L	0.010	1	09/27/16 15:20	09/30/16 16:21	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7440-36-0	
Arsenic, Total Recoverable	0.0021	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	09/27/16 15:20	10/12/16 22:33	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7440-48-4	
Molybdenum, Total Recoverable	0.0099	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	09/27/16 15:20	10/12/16 22:33	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/26/16 13:00	09/27/16 09:38	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	2560	mg/L	5.0	1		09/26/16 16:06		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		10/01/16 10:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	229	mg/L	20.0	20		10/15/16 17:54	16887-00-6	
Fluoride	0.56	mg/L	0.20	1		10/14/16 21:00	16984-48-8	
Sulfate	1300	mg/L	100	100		10/15/16 18:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 447972 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1832810 Matrix: Water
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	09/27/16 08:48	

LABORATORY CONTROL SAMPLE: 1832811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0056	112	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1832812 1832813

Parameter	Units	60228265001		60228265002		60228265003		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.00020	.005	.005	0.0056	0.0058	111	116	70-130	4	20

MATRIX SPIKE SAMPLE: 1832814

Parameter	Units	60228265002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.00020	.005	0.0033	67	70-130	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60228378

QC Batch: 448189 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1833591 Matrix: Water
Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	09/30/16 15:57	
Beryllium	mg/L	<0.0010	0.0010	09/30/16 15:57	
Boron	mg/L	<0.10	0.10	09/30/16 15:57	
Calcium	mg/L	<0.10	0.10	09/30/16 15:57	
Chromium	mg/L	<0.0050	0.0050	09/30/16 15:57	
Lead	mg/L	<0.0050	0.0050	09/30/16 15:57	
Lithium	mg/L	<0.010	0.010	09/30/16 15:57	

LABORATORY CONTROL SAMPLE: 1833592

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	102	85-115	
Beryllium	mg/L	1	1.0	101	85-115	
Boron	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	9.6	96	85-115	
Chromium	mg/L	1	0.99	99	85-115	
Lead	mg/L	1	1.0	103	85-115	
Lithium	mg/L	1	1.0	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1833593 1833594

Parameter	Units	60228378001		1833594		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	0.022	1	1	1.1	1.1	106	106	70-130	1	20
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	100	101	70-130	1	20
Boron	mg/L	4.0	1	1	5.2	5.2	116	117	70-130	0	20
Calcium	mg/L	478	10	10	509	506	312	279	70-130	1	20 M1
Chromium	mg/L	<0.0050	1	1	0.98	1.0	98	100	70-130	1	20
Lead	mg/L	<0.0050	1	1	0.98	0.99	98	99	70-130	1	20
Lithium	mg/L	0.10	1	1	1.2	1.2	114	115	70-130	0	20

MATRIX SPIKE SAMPLE: 1833595

Parameter	Units	60228510003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.057	1	1.1	102	70-130	
Beryllium	mg/L	<0.0010	1	1.0	100	70-130	
Boron	mg/L	0.29	1	1.3	101	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

MATRIX SPIKE SAMPLE:		1833595					
Parameter	Units	60228510003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	160	10	170	92	70-130	
Chromium	mg/L	<0.0050	1	0.98	98	70-130	
Lead	mg/L	<0.0050	1	1.0	100	70-130	
Lithium	mg/L	0.014	1	1.1	106	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch:	448190	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006		

METHOD BLANK: 1833596 Matrix: Water
Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	10/12/16 21:41	
Arsenic	mg/L	<0.0010	0.0010	10/12/16 21:41	
Cadmium	mg/L	<0.00050	0.00050	10/12/16 21:41	
Cobalt	mg/L	<0.0010	0.0010	10/12/16 21:41	
Molybdenum	mg/L	<0.0010	0.0010	10/12/16 21:41	
Selenium	mg/L	<0.0010	0.0010	10/12/16 21:41	
Thallium	mg/L	<0.0010	0.0010	10/12/16 21:41	

LABORATORY CONTROL SAMPLE: 1833597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	100	85-115	
Arsenic	mg/L	.04	0.041	101	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.041	101	85-115	
Molybdenum	mg/L	.04	0.042	104	85-115	
Selenium	mg/L	.04	0.039	97	85-115	
Thallium	mg/L	.04	0.038	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1833598 1833599

Parameter	Units	60228378002		1833598		1833599		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	<0.0010	.04	.04	0.040	0.039	99	96	70-130	3	20		
Arsenic	mg/L	0.0080	.04	.04	0.049	0.049	102	102	70-130	0	20		
Cadmium	mg/L	<0.00050	.04	.04	0.035	0.034	88	86	70-130	2	20		
Cobalt	mg/L	0.033	.04	.04	0.068	0.068	89	88	70-130	1	20		
Molybdenum	mg/L	0.12	.04	.04	0.17	0.16	110	106	70-130	1	20		
Selenium	mg/L	<0.0010	.04	.04	0.043	0.042	107	104	70-130	3	20		
Thallium	mg/L	<0.0010	.04	.04	0.035	0.034	87	86	70-130	1	20		

MATRIX SPIKE SAMPLE: 1833600

Parameter	Units	60228510004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.039	98	70-130	
Arsenic	mg/L	0.0035	.04	0.045	104	70-130	
Cadmium	mg/L	<0.00050	.04	0.036	89	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

MATRIX SPIKE SAMPLE:		1833600					
Parameter	Units	60228510004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.038	94	70-130	
Molybdenum	mg/L	0.047	.04	0.090	108	70-130	
Selenium	mg/L	<0.0010	.04	0.044	110	70-130	
Thallium	mg/L	<0.0010	.04	0.035	87	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 448056

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1833015

Matrix: Water

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	09/26/16 15:55	

LABORATORY CONTROL SAMPLE: 1833016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1040	104	80-120	

SAMPLE DUPLICATE: 1833017

Parameter	Units	60228313001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	326	330	1	10	

SAMPLE DUPLICATE: 1833018

Parameter	Units	60228342001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	467	480	3	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 448778 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

SAMPLE DUPLICATE: 1836590

Parameter	Units	60228455001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 450603 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1843928 Matrix: Water
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	10/14/16 18:09	

LABORATORY CONTROL SAMPLE: 1843929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843930 1843931

Parameter	Units	60228378001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.51	2.5	2.5	3.6	3.7	124	125	80-120	1	15	M1

MATRIX SPIKE SAMPLE: 1843932

Parameter	Units	60228378002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.34	2.5	3.1	112	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 450676 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1844258 Matrix: Water
 Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	10/15/16 12:57	
Sulfate	mg/L	<1.0	1.0	10/15/16 12:57	

LABORATORY CONTROL SAMPLE: 1844259

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1844260 1844261

Parameter	Units	60228378001		1844261		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Chloride	mg/L	233	100	100	351	118	112	80-120	2	15	
Sulfate	mg/L	1840	1000	1000	2960	112	108	80-120	1	15	

MATRIX SPIKE SAMPLE: 1844262

Parameter	Units	60229306001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	189	100	301	113	80-120	
Sulfate	mg/L	820	500	1370	111	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA6-092216 **Lab ID: 60228378001** Collected: 09/22/16 08:26 Received: 09/23/16 06:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.734 ± 0.424 (0.166) C:NA T:87%	pCi/L	10/12/16 22:47	13982-63-3	
Radium-228	EPA 904.0	2.35 ± 0.758 (0.949) C:65% T:83%	pCi/L	10/12/16 11:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.157 ± 0.341 (0.629) C:NA T:97%	pCi/L	10/12/16 23:10	13982-63-3	
Radium-228	EPA 904.0	1.06 ± 0.555 (0.988) C:57% T:87%	pCi/L	10/12/16 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.300 ± 0.313 (0.442) C:NA T:87%	pCi/L	10/12/16 23:18	13982-63-3	
Radium-228	EPA 904.0	2.04 ± 0.676 (0.932) C:61% T:88%	pCi/L	10/12/16 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: BAA2-092216 **Lab ID: 60228378004** Collected: 09/22/16 12:25 Received: 09/23/16 06:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.935 ± 0.544 (0.579) C:NA T:85%	pCi/L	10/12/16 23:18	13982-63-3	
Radium-228	EPA 904.0	0.481 ± 0.439 (0.895) C:64% T:85%	pCi/L	10/12/16 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: FGD1-092216 **Lab ID: 60228378005** Collected: 09/22/16 13:30 Received: 09/23/16 06:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.614 ± 0.522 (0.734) C:NA T:78%	pCi/L	10/12/16 23:19	13982-63-3	
Radium-228	EPA 904.0	0.937 ± 0.546 (1.00) C:55% T:85%	pCi/L	10/12/16 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Sample: DUP-092216 **Lab ID: 60228378006** Collected: 09/22/16 18:00 Received: 09/23/16 06:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.461 ± 0.361 (0.424) C:NA T:93%	pCi/L	10/12/16 23:19	13982-63-3	
Radium-228	EPA 904.0	2.02 ± 0.681 (0.973) C:62% T:89%	pCi/L	10/12/16 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 234974 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1153093 Matrix: Water

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.557 ± 0.410 (0.791) C:58% T:89%	pCi/L	10/12/16 11:50	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

QC Batch: 234970

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

METHOD BLANK: 1153085

Matrix: Water

Associated Lab Samples: 60228378001, 60228378002, 60228378003, 60228378004, 60228378005, 60228378006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0625 ± 0.285 (0.580) C:NA T:89%	pCi/L	10/12/16 21:46	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60228378001	BAA6-092216	EPA 200.7	448189	EPA 200.7	448246
60228378002	BAA4-092216	EPA 200.7	448189	EPA 200.7	448246
60228378003	BAA3-092216	EPA 200.7	448189	EPA 200.7	448246
60228378004	BAA2-092216	EPA 200.7	448189	EPA 200.7	448246
60228378005	FGD1-092216	EPA 200.7	448189	EPA 200.7	448246
60228378006	DUP-092216	EPA 200.7	448189	EPA 200.7	448246
60228378001	BAA6-092216	EPA 200.8	448190	EPA 200.8	448248
60228378002	BAA4-092216	EPA 200.8	448190	EPA 200.8	448248
60228378003	BAA3-092216	EPA 200.8	448190	EPA 200.8	448248
60228378004	BAA2-092216	EPA 200.8	448190	EPA 200.8	448248
60228378005	FGD1-092216	EPA 200.8	448190	EPA 200.8	448248
60228378006	DUP-092216	EPA 200.8	448190	EPA 200.8	448248
60228378001	BAA6-092216	EPA 245.1	447972	EPA 245.1	448022
60228378002	BAA4-092216	EPA 245.1	447972	EPA 245.1	448022
60228378003	BAA3-092216	EPA 245.1	447972	EPA 245.1	448022
60228378004	BAA2-092216	EPA 245.1	447972	EPA 245.1	448022
60228378005	FGD1-092216	EPA 245.1	447972	EPA 245.1	448022
60228378006	DUP-092216	EPA 245.1	447972	EPA 245.1	448022
60228378001	BAA6-092216	EPA 903.1	234970		
60228378002	BAA4-092216	EPA 903.1	234970		
60228378003	BAA3-092216	EPA 903.1	234970		
60228378004	BAA2-092216	EPA 903.1	234970		
60228378005	FGD1-092216	EPA 903.1	234970		
60228378006	DUP-092216	EPA 903.1	234970		
60228378001	BAA6-092216	EPA 904.0	234974		
60228378002	BAA4-092216	EPA 904.0	234974		
60228378003	BAA3-092216	EPA 904.0	234974		
60228378004	BAA2-092216	EPA 904.0	234974		
60228378005	FGD1-092216	EPA 904.0	234974		
60228378006	DUP-092216	EPA 904.0	234974		
60228378001	BAA6-092216	SM 2540C	448056		
60228378002	BAA4-092216	SM 2540C	448056		
60228378003	BAA3-092216	SM 2540C	448056		
60228378004	BAA2-092216	SM 2540C	448056		
60228378005	FGD1-092216	SM 2540C	448056		
60228378006	DUP-092216	SM 2540C	448056		
60228378001	BAA6-092216	SM 4500-H+B	448778		
60228378002	BAA4-092216	SM 4500-H+B	448778		
60228378003	BAA3-092216	SM 4500-H+B	448778		
60228378004	BAA2-092216	SM 4500-H+B	448778		
60228378005	FGD1-092216	SM 4500-H+B	448778		
60228378006	DUP-092216	SM 4500-H+B	448778		
60228378001	BAA6-092216	EPA 300.0	450603		
60228378001	BAA6-092216	EPA 300.0	450676		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60228378

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60228378002	BAA4-092216	EPA 300.0	450603		
60228378002	BAA4-092216	EPA 300.0	450676		
60228378003	BAA3-092216	EPA 300.0	450603		
60228378003	BAA3-092216	EPA 300.0	450676		
60228378004	BAA2-092216	EPA 300.0	450603		
60228378004	BAA2-092216	EPA 300.0	450676		
60228378005	FGD1-092216	EPA 300.0	450603		
60228378005	FGD1-092216	EPA 300.0	450676		
60228378006	DUP-092216	EPA 300.0	450603		
60228378006	DUP-092216	EPA 300.0	450676		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60228378



60228378

HMW

Client Name: WStar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.3/1.6 Corr. Factor CF +0.3 CF -0.1 Corrected 3.4/2.7

Date and initials of person examining contents:

pmg/23/16

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input checked="" type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HMW

Date: 9/23/16

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Page: **1** of **1**

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:			
Company: WESTAR ENERGY		Report To: Brandon Griffin		Attention: Jared Morrison			
Address: 818 Kansas Ave Topeka, KS 66612		Copy To: Jared Morrison, Heath Horny		Company Name: WESTAR ENERGY			
Email To: brandon.l.griffin@westarenergy.com		Purchase Order No.:		REGULATORY AGENCY <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER			
Phone: (785) 575-8135	Fax:	Project Name: JEC CCR Groundwater				Site Location	
Requested Due Date/TAT: 7 DAY		Project Number:				STATE: KS	
				Address: SEE SECTION A Pace Quote Reference: Pace Project Manager: Heather Wilson, 913-563-1407 Pace Profile #: 9657, 1			

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.										
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test ↓	200.7 Total Metals*			200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, F, SO ₄	4500 H+B	2540C TDS	Radium 226	Radium 228			
1	BAA6-092216		WT G				9/22	0826		4	1	3														18P2U	18P2U ²⁻⁰ 2BP1N w1					
2	BAA4-092216		WT G				9/22	0955		4	1	3																18P2U	18P2U ²⁻⁰ 2BP1N w2			
3	BAA3-092216		WT G				9/22	1103		4	1	3																	18P2U	18P2U ²⁻⁰ 2BP1N w3		
4	BAA2-092216		WT G				9/22	1225		4	1	3																		18P2U	18P2U ²⁻⁰ 2BP1N w4	
5	FG01-092216		WT G				9/22	1330		4	1	3																		18P2U	18P2U ²⁻⁰ 2BP1N w5	
6																																
7																																
8																																
9																																
10																																
11																																
12	04P-092216		WT G				9/22	1500		4	1	3																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	BV Westar	9/22/16	1420	[Signature]	9/23/16	0655	3-4	Y	Y	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl							2-7	Y	Y	Y

SAMPLER NAME AND SIGNATURE				Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples intact (Y/N)
PRINT Name of SAMPLER: Brandon Griffin							
SIGNATURE of SAMPLER: [Signature]							
				DATE Signed (MM/DD/YY): 09/22/16			

Page 41 of 43

Chain of Custody

WO#: 30197257



30197257



Workorder: 60228378

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 9/23/2016 Results Requested By: 10/18/2016

Report To		Subcontract To					Requested Analysis													
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600																		
							Preserved Containers					Radium 226 & 228								LAB USE ONLY
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	BP1N														
1	BAA6-092216	PS	9/22/2016 08:26	60228378001	Water	2												001		
2	BAA4-092216	PS	9/22/2016 09:55	60228378002	Water	2												002		
3	BAA3-092216	PS	9/22/2016 11:03	60228378003	Water	2												003		
4	BAA2-092216	PS	9/22/2016 12:25	60228378004	Water	2												004		
5	FGD1-092216	PS	9/22/2016 13:30	60228378005	Water	2												005		
6	DUP-092216	PS	9/22/2016 18:00	60228378006	Water	2											006			
Transfers											Comments									
Released By	Date/Time	Received	Date/Time																	
<i>[Signature]</i>	9/22/16 1700	<i>[Signature]</i>	9-22-16 950																	
Cooler Temperature on Receipt <i>N/A</i> °C											Custody Seal <input checked="" type="checkbox"/> Y or <input type="checkbox"/> N		Received on Ice <input type="checkbox"/> Y or <input checked="" type="checkbox"/> N		Samples Intact <input checked="" type="checkbox"/> Y or <input type="checkbox"/> N					

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh



Client Name: Pace KS

Project # 30197257

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 70446653 9584

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ML 9-27-16

Comments:

	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:		X		4.
Sample Labels match COC:	X			5.
-Includes date/time/ID/Analysis Matrix: <u>Int</u>				
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used:	X			10.
-Pace Containers Used:	X			
Containers Intact:	X			11.
Filtered volume received for Dissolved tests		X		12.
All containers needing preservation have been checked.	X			13.
All containers needing preservation are found to be in compliance with EPA recommendation.	X			<u>PH < 2</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ML</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			X	14.
Trip Blank Present:		X		15.
Trip Blank Custody Seals Present		X		
Rad Aqueous Samples Screened > 0.5 mrem/hr		X		Initial when completed: <u>ML</u> Date: <u>9-27-16</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-3
November 2016 Sampling Event
Laboratory Analytical Report

December 07, 2016

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60231627

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on November 05, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60231627001	BAA-6-110316	Water	11/03/16 08:38	11/05/16 08:50
60231627002	BAA-2-110316	Water	11/03/16 10:02	11/05/16 08:50
60231627003	BAA-4-110316	Water	11/03/16 11:17	11/05/16 08:50
60231627004	BAA-3-110316	Water	11/03/16 12:32	11/05/16 08:50
60231627005	FGD-1-110316	Water	11/03/16 13:55	11/05/16 08:50
60231627006	FGD-4-110316	Water	11/03/16 14:57	11/05/16 08:50
60231627007	FGD-3-110316	Water	11/03/16 13:55	11/05/16 08:50
60231627008	FGD-2-110316	Water	11/03/16 16:40	11/05/16 08:50
60231627009	FAA-5-110416	Water	11/03/16 08:31	11/05/16 08:50
60231627010	FAA-4-110416	Water	11/03/16 09:28	11/05/16 08:50
60231627011	DUP-110416	Water	11/03/16 06:00	11/05/16 08:50
60231627012	DUP-110316	Water	11/03/16 06:00	11/05/16 08:50
60231627013	FAA-3-110416	Water	11/04/16 10:30	11/05/16 08:50
60231627014	FAA-2-110416	Water	11/04/16 11:30	11/05/16 08:50

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER
Pace Project No.: 60231627

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231627001	BAA-6-110316	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
60231627002	BAA-2-110316	EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
60231627003	BAA-4-110316	SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60231627004	BAA-3-110316	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60231627005	FGD-1-110316	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER
Pace Project No.: 60231627

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231627006	FGD-4-110316	EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
SM 4500-H+B	AGO	1	PASI-K		
60231627007	FGD-3-110316	EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
Total Radium Calculation	CMC	1	PASI-PA		
SM 2540C	JSS	1	PASI-K		
SM 4500-H+B	JSS	1	PASI-K		
60231627008	FGD-2-110316	EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
Total Radium Calculation	CMC	1	PASI-PA		
SM 2540C	JSS	1	PASI-K		
SM 4500-H+B	AGO	1	PASI-K		
60231627009	FAA-5-110416	EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60231627010	FAA-4-110416	EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
60231627011	DUP-110416	SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
60231627012	DUP-110316	EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
60231627013	FAA-3-110416	EPA 300.0	RAB	3	PASI-K
		EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	RAB	3	PASI-K
60231627014	FAA-2-110416	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	ZBM	1	PASI-K
		EPA 903.1	ACM	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	RAB	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 455898

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60231627003,60232038001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1866968)
 - Mercury
- MSD (Lab ID: 1866969)
 - Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-110316 (Lab ID: 60231627002)
- BAA-3-110316 (Lab ID: 60231627004)
- BAA-4-110316 (Lab ID: 60231627003)
- BAA-6-110316 (Lab ID: 60231627001)
- DUP-110316 (Lab ID: 60231627012)
- DUP-110416 (Lab ID: 60231627011)
- FAA-2-110416 (Lab ID: 60231627014)
- FAA-3-110416 (Lab ID: 60231627013)
- FAA-4-110416 (Lab ID: 60231627010)
- FAA-5-110416 (Lab ID: 60231627009)
- FGD-1-110316 (Lab ID: 60231627005)
- FGD-2-110316 (Lab ID: 60231627008)
- FGD-3-110316 (Lab ID: 60231627007)
- FGD-4-110316 (Lab ID: 60231627006)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: December 07, 2016

General Information:

14 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 456713

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60232075004,60232096004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1869910)
 - Sulfate
- MS (Lab ID: 1869912)
 - Chloride
 - Sulfate
- MSD (Lab ID: 1869911)
 - Fluoride
 - Sulfate

QC Batch: 456831

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60232532002,60233017001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1870416)
 - Chloride
- MSD (Lab ID: 1870417)
 - Chloride

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-6-110316	Lab ID: 60231627001	Collected: 11/03/16 08:38	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.021	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:08	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:08	7440-41-7	
Boron, Total Recoverable	3.8	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:08	7440-42-8	
Calcium, Total Recoverable	513	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:08	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:08	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:08	7439-92-1	
Lithium	0.095	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:08	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7440-36-0	
Arsenic, Total Recoverable	0.0012	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 16:26	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7440-48-4	
Molybdenum, Total Recoverable	0.0059	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:26	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:31	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3220	mg/L	5.0	1		11/09/16 11:27		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	183	mg/L	20.0	20		11/29/16 15:27	16887-00-6	
Fluoride	0.62	mg/L	0.20	1		11/29/16 15:13	16984-48-8	
Sulfate	2070	mg/L	200	200		11/30/16 03:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-2-110316	Lab ID: 60231627002	Collected: 11/03/16 10:02	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.055	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:19	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:19	7440-41-7	
Boron, Total Recoverable	1.1	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:19	7440-42-8	
Calcium, Total Recoverable	188	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:19	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:19	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:19	7439-92-1	
Lithium	0.020	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:19	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7440-36-0	
Arsenic, Total Recoverable	0.0062	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 16:39	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7440-48-4	
Molybdenum, Total Recoverable	0.044	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:39	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:33	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1360	mg/L	5.0	1		11/09/16 11:29		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.5	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	137	mg/L	10.0	10		11/29/16 16:10	16887-00-6	
Fluoride	0.51	mg/L	0.20	1		11/29/16 15:56	16984-48-8	
Sulfate	983	mg/L	100	100		11/30/16 18:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-4-110316	Lab ID: 60231627003	Collected: 11/03/16 11:17	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.032	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:23	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:23	7440-41-7	
Boron, Total Recoverable	0.92	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:23	7440-42-8	
Calcium, Total Recoverable	393	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:23	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:23	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:23	7439-92-1	
Lithium	0.015	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:23	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7440-36-0	
Arsenic, Total Recoverable	0.0082	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7440-38-2	
Cadmium, Total Recoverable	<0.0050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 16:48	7440-43-9	
Cobalt, Total Recoverable	0.026	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7440-48-4	
Molybdenum, Total Recoverable	0.13	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:48	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:35	7439-97-6	M1
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3820	mg/L	5.0	1		11/09/16 11:30		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	183	mg/L	20.0	20		11/29/16 18:59	16887-00-6	
Fluoride	0.36	mg/L	0.20	1		11/29/16 18:45	16984-48-8	
Sulfate	2800	mg/L	200	200		11/29/16 19:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-3-110316		Lab ID: 60231627004		Collected: 11/03/16 12:32		Received: 11/05/16 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.015	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:27	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:27	7440-41-7		
Boron, Total Recoverable	2.3	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:27	7440-42-8		
Calcium, Total Recoverable	507	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:27	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:27	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:27	7439-92-1		
Lithium	0.095	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:27	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 16:52	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7440-48-4		
Molybdenum, Total Recoverable	0.0023	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:52	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:42	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3150	mg/L	5.0	1		11/09/16 11:30			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.1	Std. Units	0.10	1		11/11/16 16:20		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	157	mg/L	20.0	20		11/29/16 20:10	16887-00-6		
Fluoride	0.92	mg/L	0.20	1		11/29/16 19:56	16984-48-8		
Sulfate	2290	mg/L	200	200		11/29/16 20:24	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-1-110316		Lab ID: 60231627005	Collected: 11/03/16 13:55	Received: 11/05/16 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.31	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:31	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:31	7440-41-7	
Boron, Total Recoverable	0.10	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:31	7440-42-8	
Calcium, Total Recoverable	94.6	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:31	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:31	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:31	7439-92-1	
Lithium	0.016	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:31	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 16:56	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7440-48-4	
Molybdenum, Total Recoverable	0.0013	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 16:56	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:44	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	495	mg/L	5.0	1		11/09/16 11:31		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	49.2	mg/L	5.0	5		11/29/16 20:53	16887-00-6	
Fluoride	0.32	mg/L	0.20	1		11/29/16 20:39	16984-48-8	
Sulfate	95.4	mg/L	5.0	5		11/29/16 20:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-4-110316		Lab ID: 60231627006	Collected: 11/03/16 14:57	Received: 11/05/16 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.057	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:35	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:35	7440-41-7	
Boron, Total Recoverable	0.28	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:35	7440-42-8	
Calcium, Total Recoverable	164	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:35	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:35	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:35	7439-92-1	
Lithium	0.015	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:35	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:09	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7440-48-4	
Molybdenum, Total Recoverable	0.0040	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:09	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:46	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	947	mg/L	5.0	1		11/09/16 11:32		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		11/12/16 11:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	80.9	mg/L	5.0	5		11/29/16 21:21	16887-00-6	
Fluoride	0.32	mg/L	0.20	1		11/29/16 21:07	16984-48-8	
Sulfate	412	mg/L	50.0	50		11/29/16 21:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-3-110316	Lab ID: 60231627007	Collected: 11/03/16 13:55	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.19	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:38	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:38	7440-41-7	
Boron, Total Recoverable	0.13	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:38	7440-42-8	
Calcium, Total Recoverable	160	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:38	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:38	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:38	7439-92-1	
Lithium	0.016	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:38	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:14	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7440-48-4	
Molybdenum, Total Recoverable	0.0062	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:14	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:53	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	817	mg/L	5.0	1		11/09/16 11:33		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	66.7	mg/L	5.0	5		11/29/16 22:46	16887-00-6	
Fluoride	0.29	mg/L	0.20	1		11/29/16 21:50	16984-48-8	
Sulfate	313	mg/L	20.0	20		11/29/16 22:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-2-110316	Lab ID: 60231627008	Collected: 11/03/16 16:40	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.097	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:42	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:42	7440-41-7	
Boron, Total Recoverable	0.26	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:42	7440-42-8	
Calcium, Total Recoverable	161	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:42	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:42	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:42	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:42	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:18	7440-43-9	
Cobalt, Total Recoverable	0.0016	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7440-48-4	
Molybdenum, Total Recoverable	0.0040	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7439-98-7	
Selenium, Total Recoverable	0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:18	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:55	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	769	mg/L	5.0	1		11/09/16 11:33		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		11/12/16 11:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	36.6	mg/L	5.0	5		11/30/16 18:44	16887-00-6	
Fluoride	0.35	mg/L	0.20	1		11/29/16 23:01	16984-48-8	
Sulfate	325	mg/L	20.0	20		11/29/16 23:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-5-110416	Lab ID: 60231627009	Collected: 11/03/16 08:31	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.011	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:46	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:46	7440-41-7	
Boron, Total Recoverable	1.0	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:46	7440-42-8	
Calcium, Total Recoverable	220	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:46	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:46	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:46	7439-92-1	
Lithium	0.075	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:46	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7440-36-0	
Arsenic, Total Recoverable	0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7440-38-2	
Cadmium, Total Recoverable	<0.0050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:23	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7440-48-4	
Molybdenum, Total Recoverable	0.0093	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7439-98-7	
Selenium, Total Recoverable	0.0039	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:23	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 12:58	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1470	mg/L	5.0	1		11/09/16 11:34		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	99.6	mg/L	10.0	10		11/29/16 23:57	16887-00-6	
Fluoride	0.54	mg/L	0.20	1		11/29/16 23:43	16984-48-8	
Sulfate	834	mg/L	200	200		11/30/16 00:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-4-110416		Lab ID: 60231627010	Collected: 11/03/16 09:28	Received: 11/05/16 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.053	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:50	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:50	7440-41-7	
Boron, Total Recoverable	0.36	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:50	7440-42-8	
Calcium, Total Recoverable	205	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:50	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:50	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:50	7439-92-1	
Lithium	0.016	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:50	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:27	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7440-48-4	
Molybdenum, Total Recoverable	0.0030	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:27	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 13:00	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1170	mg/L	5.0	1		11/09/16 11:35		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		11/11/16 16:20		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	85.6	mg/L	10.0	10		11/30/16 00:40	16887-00-6	
Fluoride	0.32	mg/L	0.20	1		11/30/16 00:26	16984-48-8	
Sulfate	579	mg/L	50.0	50		11/30/16 00:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: DUP-110416		Lab ID: 60231627011	Collected: 11/03/16 06:00	Received: 11/05/16 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.052	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:54	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 13:54	7440-41-7	
Boron, Total Recoverable	0.35	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:54	7440-42-8	
Calcium, Total Recoverable	203	mg/L	0.10	1	11/08/16 09:00	11/09/16 13:54	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:54	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 13:54	7439-92-1	
Lithium	0.016	mg/L	0.010	1	11/08/16 09:00	11/09/16 13:54	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:31	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7440-48-4	
Molybdenum, Total Recoverable	0.0030	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:31	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 13:02	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1150	mg/L	5.0	1		11/09/16 11:37		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		11/09/16 16:12		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	86.1	mg/L	20.0	20		11/30/16 01:51	16887-00-6	
Fluoride	0.32	mg/L	0.20	1		11/30/16 01:37	16984-48-8	
Sulfate	562	mg/L	50.0	50		11/30/16 18:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: DUP-110316		Lab ID: 60231627012		Collected: 11/03/16 06:00	Received: 11/05/16 08:50	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.053	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:14	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 14:14	7440-41-7	
Boron, Total Recoverable	1.2	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:14	7440-42-8	
Calcium, Total Recoverable	205	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:14	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:14	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:14	7439-92-1	
Lithium	0.015	mg/L	0.010	1	11/08/16 09:00	11/09/16 14:14	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7440-36-0	
Arsenic, Total Recoverable	0.0075	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:36	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7440-48-4	
Molybdenum, Total Recoverable	0.054	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:36	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 13:04	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1460	mg/L	5.0	1		11/09/16 11:37		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		11/09/16 16:12		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	158	mg/L	20.0	20		11/30/16 02:34	16887-00-6	
Fluoride	0.52	mg/L	0.20	1		11/30/16 02:19	16984-48-8	
Sulfate	900	mg/L	200	200		11/30/16 02:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-3-110416	Lab ID: 60231627013	Collected: 11/04/16 10:30	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.034	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:18	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 14:18	7440-41-7	
Boron, Total Recoverable	0.95	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:18	7440-42-8	
Calcium, Total Recoverable	214	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:18	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:18	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:18	7439-92-1	
Lithium	0.017	mg/L	0.010	1	11/08/16 09:00	11/09/16 14:18	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:40	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7440-48-4	
Molybdenum, Total Recoverable	0.014	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:40	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 13:06	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1490	mg/L	5.0	1		11/09/16 11:38		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	6.9	Std. Units	0.10	1		11/12/16 11:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	89.5	mg/L	10.0	10		11/30/16 03:16	16887-00-6	
Fluoride	0.31	mg/L	0.20	1		11/30/16 03:02	16984-48-8	
Sulfate	896	mg/L	50.0	50		11/30/16 03:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-2-110416	Lab ID: 60231627014	Collected: 11/04/16 11:30	Received: 11/05/16 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.035	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:22	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/09/16 14:22	7440-41-7	
Boron, Total Recoverable	3.2	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:22	7440-42-8	
Calcium, Total Recoverable	330	mg/L	0.10	1	11/08/16 09:00	11/09/16 14:22	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:22	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	11/08/16 09:00	11/09/16 14:22	7439-92-1	
Lithium	0.018	mg/L	0.010	1	11/08/16 09:00	11/09/16 14:22	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	11/08/16 09:00	11/28/16 17:44	7440-43-9	
Cobalt, Total Recoverable	0.0012	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7440-48-4	
Molybdenum, Total Recoverable	0.27	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	11/08/16 09:00	11/28/16 17:44	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	11/22/16 08:30	11/22/16 13:09	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3160	mg/L	5.0	1		11/09/16 11:38		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		11/12/16 11:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	68.8	mg/L	10.0	10		11/30/16 17:19	16887-00-6	
Fluoride	0.60	mg/L	0.20	1		11/30/16 18:15	16984-48-8	
Sulfate	2030	mg/L	200	200		11/30/16 17:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60231627

QC Batch: 455898 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014

METHOD BLANK: 1866966 Matrix: Water
Associated Lab Samples: 60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	11/22/16 12:26	

LABORATORY CONTROL SAMPLE: 1866967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0052	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1866968 1866969

Parameter	Units	60231627003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.00020	.005	.005	0.0028	0.0028	57	55	70-130	2	20	M1

MATRIX SPIKE SAMPLE: 1866970

Parameter	Units	60232038001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0063	126	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	453876	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Total
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

METHOD BLANK:	1858392	Matrix:	Water
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	11/09/16 12:35	
Beryllium	mg/L	<0.0010	0.0010	11/09/16 12:35	
Boron	mg/L	<0.10	0.10	11/09/16 12:35	
Calcium	mg/L	<0.10	0.10	11/09/16 12:35	
Chromium	mg/L	<0.0050	0.0050	11/09/16 12:35	
Lead	mg/L	<0.0050	0.0050	11/09/16 12:35	
Lithium	mg/L	<0.010	0.010	11/09/16 12:35	

LABORATORY CONTROL SAMPLE: 1858393

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.1	106	85-115	
Beryllium	mg/L	1	0.97	97	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.9	99	85-115	
Chromium	mg/L	1	1.0	102	85-115	
Lead	mg/L	1	1.1	106	85-115	
Lithium	mg/L	1	1.0	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1858394 1858395

Parameter	Units	60231598001		60231598002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Result	Conc.	Result	Result	% Rec	% Rec				
Barium	mg/L	6.3 ug/L	1	1	1	1.1	1.1	105	105	70-130	0	20	
Beryllium	mg/L	ND	1	1	1	0.97	0.97	97	97	70-130	0	20	
Boron	mg/L	ND	1	1	1	0.96	0.96	96	96	70-130	0	20	
Calcium	mg/L	2220 ug/L	10	10	10	12.2	12.2	99	100	70-130	0	20	
Chromium	mg/L	ND	1	1	1	1.0	1.0	103	102	70-130	1	20	
Lead	mg/L	ND	1	1	1	1.0	1.0	105	104	70-130	0	20	
Lithium	mg/L	ND	1	1	1	1.0	1.0	102	102	70-130	1	20	

MATRIX SPIKE SAMPLE: 1858396

Parameter	Units	60231598002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	60.5 ug/L	1	1.1	105	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

MATRIX SPIKE SAMPLE:		1858396					
Parameter	Units	60231598002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Beryllium	mg/L	ND	1	0.99	99	70-130	
Boron	mg/L	ND	1	0.98	97	70-130	
Calcium	mg/L	11700 ug/L	10	21.4	97	70-130	
Chromium	mg/L	ND	1	1.0	102	70-130	
Lead	mg/L	ND	1	1.0	105	70-130	
Lithium	mg/L	ND	1	1.0	103	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	453882	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

METHOD BLANK:	1858415	Matrix:	Water
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	11/28/16 16:18	
Arsenic	mg/L	<0.0010	0.0010	11/28/16 16:18	
Cadmium	mg/L	<0.00050	0.00050	11/28/16 16:18	
Cobalt	mg/L	<0.0010	0.0010	11/28/16 16:18	
Molybdenum	mg/L	<0.0010	0.0010	11/28/16 16:18	
Selenium	mg/L	<0.0010	0.0010	11/28/16 16:18	
Thallium	mg/L	<0.0010	0.0010	11/28/16 16:18	

LABORATORY CONTROL SAMPLE: 1858416

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.041	102	85-115	
Arsenic	mg/L	.04	0.041	103	85-115	
Cadmium	mg/L	.04	0.040	100	85-115	
Cobalt	mg/L	.04	0.040	100	85-115	
Molybdenum	mg/L	.04	0.042	105	85-115	
Selenium	mg/L	.04	0.039	97	85-115	
Thallium	mg/L	.04	0.038	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1858417 1858418

Parameter	Units	60231627001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	mg/L	<0.0010	.04	.04	0.041	0.041	101	101	70-130	0	20		
Arsenic	mg/L	0.0012	.04	.04	0.043	0.043	105	105	70-130	1	20		
Cadmium	mg/L	<0.00050	.04	.04	0.036	0.036	91	91	70-130	0	20		
Cobalt	mg/L	<0.0010	.04	.04	0.038	0.038	92	93	70-130	1	20		
Molybdenum	mg/L	0.0059	.04	.04	0.050	0.050	110	110	70-130	0	20		
Selenium	mg/L	<0.0010	.04	.04	0.040	0.042	100	103	70-130	3	20		
Thallium	mg/L	<0.0010	.04	.04	0.035	0.036	88	89	70-130	1	20		

MATRIX SPIKE SAMPLE: 1858419

Parameter	Units	60231627002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.041	102	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

MATRIX SPIKE SAMPLE:		1858419					
Parameter	Units	60231627002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.0062	.04	0.048	105	70-130	
Cadmium	mg/L	<0.00050	.04	0.038	94	70-130	
Cobalt	mg/L	<0.0010	.04	0.039	96	70-130	
Molybdenum	mg/L	0.044	.04	0.088	110	70-130	
Selenium	mg/L	<0.0010	.04	0.037	94	70-130	
Thallium	mg/L	<0.0010	.04	0.037	92	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	454069	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

METHOD BLANK: 1859185 Matrix: Water

Associated Lab Samples: 60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	11/09/16 11:25	

LABORATORY CONTROL SAMPLE: 1859186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	938	94	80-120	

SAMPLE DUPLICATE: 1859187

Parameter	Units	60231627001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3220	3180	1	10	

SAMPLE DUPLICATE: 1859188

Parameter	Units	60231627010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1170	1140	3	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch: 454194 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60231627011, 60231627012

SAMPLE DUPLICATE: 1859816

Parameter	Units	60231381007 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.8	6.8	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	454625	Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 4500-H+B	Analysis Description:	4500H+B pH
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627007, 60231627009, 60231627010		

SAMPLE DUPLICATE: 1861765

Parameter	Units	60231480001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.2	8.2	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch: 454661 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60231627006, 60231627008, 60231627013, 60231627014

SAMPLE DUPLICATE: 1862077

Parameter	Units	60231506002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60231627

QC Batch: 456713 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013

METHOD BLANK: 1869908 Matrix: Water
Associated Lab Samples: 60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	11/29/16 09:18	
Fluoride	mg/L	<0.20	0.20	11/29/16 09:18	
Sulfate	mg/L	<1.0	1.0	11/29/16 09:18	

LABORATORY CONTROL SAMPLE: 1869909

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1869910 1869911

Parameter	Units	60232075004		1869910		1869911		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MS Result	MS Spike Conc.	MS Result	MS Spike Conc.				
Chloride	mg/L	ND	100	100	113	117	103	107	80-120	3	15
Fluoride	mg/L	ND	50	50	57.9	60.8	116	122	80-120	5	15 M1
Sulfate	mg/L	166	100	100	287	288	121	122	80-120	0	15 M1

MATRIX SPIKE SAMPLE: 1869912

Parameter	Units	60232096004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	97.9	50	160	123	80-120	M1
Fluoride	mg/L	ND	25	30.0	117	80-120	
Sulfate	mg/L	194	50	255	122	80-120	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch: 456831 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60231627002, 60231627008, 60231627011, 60231627014

METHOD BLANK: 1870414 Matrix: Water
 Associated Lab Samples: 60231627002, 60231627008, 60231627011, 60231627014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	11/30/16 14:28	
Fluoride	mg/L	<0.20	0.20	11/30/16 14:28	
Sulfate	mg/L	<1.0	1.0	11/30/16 14:28	

LABORATORY CONTROL SAMPLE: 1870415

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1870416 1870417

Parameter	Units	60232532002		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	66400	25000	25000	97800	98100	125	127	80-120	0	15	M1			
Fluoride	mg/L	ND	12500	12500	13700	14700	107	115	80-120	7	15				
Sulfate	mg/L	19500	25000	25000	48100	48100	115	114	80-120	0	15				

MATRIX SPIKE SAMPLE: 1870418

Parameter	Units	60233017001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	587	500	1090	101	80-120	
Fluoride	mg/L	ND	250	254	97	80-120	
Sulfate	mg/L	ND	500	572	98	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-6-110316 **Lab ID: 60231627001** Collected: 11/03/16 08:38 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.142 ± 0.342 (0.661) C:NA T:89%	pCi/L	12/05/16 22:01	13982-63-3	
Radium-228	EPA 904.0	1.73 ± 0.641 (0.939) C:62% T:81%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	1.87 ± 0.983 (1.60)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-2-110316 **Lab ID: 60231627002** Collected: 11/03/16 10:02 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.479 ± 0.406 (0.503) C:NA T:91%	pCi/L	12/05/16 22:01	13982-63-3	
Radium-228	EPA 904.0	0.845 ± 0.453 (0.816) C:72% T:83%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	1.32 ± 0.859 (1.32)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-4-110316 **Lab ID: 60231627003** Collected: 11/03/16 11:17 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.137 ± 0.314 (0.739) C:NA T:90%	pCi/L	12/05/16 22:01	13982-63-3	
Radium-228	EPA 904.0	0.456 ± 0.507 (1.07) C:77% T:82%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	0.593 ± 0.821 (1.81)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: BAA-3-110316 **Lab ID: 60231627004** Collected: 11/03/16 12:32 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.262 ± 0.364 (0.608) C:NA T:90%	pCi/L	12/05/16 22:01	13982-63-3	
Radium-228	EPA 904.0	0.635 ± 0.416 (0.790) C:77% T:80%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	0.897 ± 0.780 (1.40)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-1-110316 **Lab ID: 60231627005** Collected: 11/03/16 13:55 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.01 ± 0.577 (0.531) C:NA T:85%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.325 ± 0.388 (0.820) C:73% T:84%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	1.34 ± 0.965 (1.35)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-4-110316 **Lab ID: 60231627006** Collected: 11/03/16 14:57 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.149 ± 0.461 (0.892) C:NA T:84%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.345 ± 0.434 (0.922) C:67% T:81%	pCi/L	12/06/16 11:38	15262-20-1	
Total Radium	Total Radium Calculation	0.494 ± 0.895 (1.81)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-3-110316 **Lab ID: 60231627007** Collected: 11/03/16 13:55 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.667 ± 0.568 (0.798) C:NA T:88%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.131 ± 0.336 (0.749) C:73% T:88%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.798 ± 0.904 (1.55)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FGD-2-110316 **Lab ID: 60231627008** Collected: 11/03/16 16:40 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.233 ± 0.356 (0.211) C:NA T:80%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.470 ± 0.342 (0.662) C:75% T:87%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.703 ± 0.698 (0.873)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-5-110416 **Lab ID: 60231627009** Collected: 11/03/16 08:31 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.135 ± 0.373 (0.724) C:NA T:91%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.821 ± 0.519 (0.988) C:61% T:85%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.956 ± 0.892 (1.71)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-4-110416 **Lab ID: 60231627010** Collected: 11/03/16 09:28 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0681 ± 0.311 (0.502) C:NA T:88%	pCi/L	12/05/16 22:32	13982-63-3	
Radium-228	EPA 904.0	0.404 ± 0.395 (0.811) C:68% T:83%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.472 ± 0.706 (1.31)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: DUP-110416 **Lab ID: 60231627011** Collected: 11/03/16 06:00 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.30 ± 0.679 (0.668) C:NA T:91%	pCi/L	12/05/16 23:00	13982-63-3	
Radium-228	EPA 904.0	-0.163 ± 0.338 (0.822) C:66% T:89%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	1.30 ± 1.02 (1.49)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: DUP-110316 **Lab ID: 60231627012** Collected: 11/03/16 06:00 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.907 ± 0.540 (0.514) C:NA T:88%	pCi/L	12/05/16 23:00	13982-63-3	
Radium-228	EPA 904.0	1.03 ± 0.450 (0.722) C:68% T:86%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	1.94 ± 0.990 (1.24)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-3-110416 **Lab ID: 60231627013** Collected: 11/04/16 10:30 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0681 ± 0.353 (0.733) C:NA T:89%	pCi/L	12/05/16 23:00	13982-63-3	
Radium-228	EPA 904.0	0.0499 ± 0.328 (0.756) C:65% T:87%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.118 ± 0.681 (1.49)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Sample: FAA-2-110416 **Lab ID: 60231627014** Collected: 11/04/16 11:30 Received: 11/05/16 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.203 ± 0.310 (0.499) C:NA T:93%	pCi/L	12/05/16 23:00	13982-63-3	
Radium-228	EPA 904.0	0.0530 ± 0.350 (0.802) C:67% T:86%	pCi/L	12/06/16 11:39	15262-20-1	
Total Radium	Total Radium Calculation	0.256 ± 0.660 (1.30)	pCi/L	12/07/16 11:07	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	241312	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

METHOD BLANK:	1186284	Matrix:	Water
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.214 ± 0.327 (0.193) C:NA T:87%	pCi/L	12/05/16 22:01	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

QC Batch:	241313	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

METHOD BLANK:	1186285	Matrix:	Water
Associated Lab Samples:	60231627001, 60231627002, 60231627003, 60231627004, 60231627005, 60231627006, 60231627007, 60231627008, 60231627009, 60231627010, 60231627011, 60231627012, 60231627013, 60231627014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.214 ± 0.294 (0.629) C:76% T:91%	pCi/L	12/06/16 11:40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231627001	BAA-6-110316	EPA 200.7	453876	EPA 200.7	453988
60231627002	BAA-2-110316	EPA 200.7	453876	EPA 200.7	453988
60231627003	BAA-4-110316	EPA 200.7	453876	EPA 200.7	453988
60231627004	BAA-3-110316	EPA 200.7	453876	EPA 200.7	453988
60231627005	FGD-1-110316	EPA 200.7	453876	EPA 200.7	453988
60231627006	FGD-4-110316	EPA 200.7	453876	EPA 200.7	453988
60231627007	FGD-3-110316	EPA 200.7	453876	EPA 200.7	453988
60231627008	FGD-2-110316	EPA 200.7	453876	EPA 200.7	453988
60231627009	FAA-5-110416	EPA 200.7	453876	EPA 200.7	453988
60231627010	FAA-4-110416	EPA 200.7	453876	EPA 200.7	453988
60231627011	DUP-110416	EPA 200.7	453876	EPA 200.7	453988
60231627012	DUP-110316	EPA 200.7	453876	EPA 200.7	453988
60231627013	FAA-3-110416	EPA 200.7	453876	EPA 200.7	453988
60231627014	FAA-2-110416	EPA 200.7	453876	EPA 200.7	453988
60231627001	BAA-6-110316	EPA 200.8	453882	EPA 200.8	453990
60231627002	BAA-2-110316	EPA 200.8	453882	EPA 200.8	453990
60231627003	BAA-4-110316	EPA 200.8	453882	EPA 200.8	453990
60231627004	BAA-3-110316	EPA 200.8	453882	EPA 200.8	453990
60231627005	FGD-1-110316	EPA 200.8	453882	EPA 200.8	453990
60231627006	FGD-4-110316	EPA 200.8	453882	EPA 200.8	453990
60231627007	FGD-3-110316	EPA 200.8	453882	EPA 200.8	453990
60231627008	FGD-2-110316	EPA 200.8	453882	EPA 200.8	453990
60231627009	FAA-5-110416	EPA 200.8	453882	EPA 200.8	453990
60231627010	FAA-4-110416	EPA 200.8	453882	EPA 200.8	453990
60231627011	DUP-110416	EPA 200.8	453882	EPA 200.8	453990
60231627012	DUP-110316	EPA 200.8	453882	EPA 200.8	453990
60231627013	FAA-3-110416	EPA 200.8	453882	EPA 200.8	453990
60231627014	FAA-2-110416	EPA 200.8	453882	EPA 200.8	453990
60231627001	BAA-6-110316	EPA 245.1	455898	EPA 245.1	455994
60231627002	BAA-2-110316	EPA 245.1	455898	EPA 245.1	455994
60231627003	BAA-4-110316	EPA 245.1	455898	EPA 245.1	455994
60231627004	BAA-3-110316	EPA 245.1	455898	EPA 245.1	455994
60231627005	FGD-1-110316	EPA 245.1	455898	EPA 245.1	455994
60231627006	FGD-4-110316	EPA 245.1	455898	EPA 245.1	455994
60231627007	FGD-3-110316	EPA 245.1	455898	EPA 245.1	455994
60231627008	FGD-2-110316	EPA 245.1	455898	EPA 245.1	455994
60231627009	FAA-5-110416	EPA 245.1	455898	EPA 245.1	455994
60231627010	FAA-4-110416	EPA 245.1	455898	EPA 245.1	455994
60231627011	DUP-110416	EPA 245.1	455898	EPA 245.1	455994
60231627012	DUP-110316	EPA 245.1	455898	EPA 245.1	455994
60231627013	FAA-3-110416	EPA 245.1	455898	EPA 245.1	455994
60231627014	FAA-2-110416	EPA 245.1	455898	EPA 245.1	455994
60231627001	BAA-6-110316	EPA 903.1	241312		
60231627002	BAA-2-110316	EPA 903.1	241312		
60231627003	BAA-4-110316	EPA 903.1	241312		
60231627004	BAA-3-110316	EPA 903.1	241312		
60231627005	FGD-1-110316	EPA 903.1	241312		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231627006	FGD-4-110316	EPA 903.1	241312		
60231627007	FGD-3-110316	EPA 903.1	241312		
60231627008	FGD-2-110316	EPA 903.1	241312		
60231627009	FAA-5-110416	EPA 903.1	241312		
60231627010	FAA-4-110416	EPA 903.1	241312		
60231627011	DUP-110416	EPA 903.1	241312		
60231627012	DUP-110316	EPA 903.1	241312		
60231627013	FAA-3-110416	EPA 903.1	241312		
60231627014	FAA-2-110416	EPA 903.1	241312		
60231627001	BAA-6-110316	EPA 904.0	241313		
60231627002	BAA-2-110316	EPA 904.0	241313		
60231627003	BAA-4-110316	EPA 904.0	241313		
60231627004	BAA-3-110316	EPA 904.0	241313		
60231627005	FGD-1-110316	EPA 904.0	241313		
60231627006	FGD-4-110316	EPA 904.0	241313		
60231627007	FGD-3-110316	EPA 904.0	241313		
60231627008	FGD-2-110316	EPA 904.0	241313		
60231627009	FAA-5-110416	EPA 904.0	241313		
60231627010	FAA-4-110416	EPA 904.0	241313		
60231627011	DUP-110416	EPA 904.0	241313		
60231627012	DUP-110316	EPA 904.0	241313		
60231627013	FAA-3-110416	EPA 904.0	241313		
60231627014	FAA-2-110416	EPA 904.0	241313		
60231627001	BAA-6-110316	Total Radium Calculation	242594		
60231627002	BAA-2-110316	Total Radium Calculation	242594		
60231627003	BAA-4-110316	Total Radium Calculation	242594		
60231627004	BAA-3-110316	Total Radium Calculation	242594		
60231627005	FGD-1-110316	Total Radium Calculation	242594		
60231627006	FGD-4-110316	Total Radium Calculation	242594		
60231627007	FGD-3-110316	Total Radium Calculation	242594		
60231627008	FGD-2-110316	Total Radium Calculation	242594		
60231627009	FAA-5-110416	Total Radium Calculation	242594		
60231627010	FAA-4-110416	Total Radium Calculation	242594		
60231627011	DUP-110416	Total Radium Calculation	242594		
60231627012	DUP-110316	Total Radium Calculation	242594		
60231627013	FAA-3-110416	Total Radium Calculation	242594		
60231627014	FAA-2-110416	Total Radium Calculation	242594		
60231627001	BAA-6-110316	SM 2540C	454069		
60231627002	BAA-2-110316	SM 2540C	454069		
60231627003	BAA-4-110316	SM 2540C	454069		
60231627004	BAA-3-110316	SM 2540C	454069		
60231627005	FGD-1-110316	SM 2540C	454069		
60231627006	FGD-4-110316	SM 2540C	454069		
60231627007	FGD-3-110316	SM 2540C	454069		
60231627008	FGD-2-110316	SM 2540C	454069		
60231627009	FAA-5-110416	SM 2540C	454069		
60231627010	FAA-4-110416	SM 2540C	454069		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60231627

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60231627011	DUP-110416	SM 2540C	454069		
60231627012	DUP-110316	SM 2540C	454069		
60231627013	FAA-3-110416	SM 2540C	454069		
60231627014	FAA-2-110416	SM 2540C	454069		
60231627001	BAA-6-110316	SM 4500-H+B	454625		
60231627002	BAA-2-110316	SM 4500-H+B	454625		
60231627003	BAA-4-110316	SM 4500-H+B	454625		
60231627004	BAA-3-110316	SM 4500-H+B	454625		
60231627005	FGD-1-110316	SM 4500-H+B	454625		
60231627006	FGD-4-110316	SM 4500-H+B	454661		
60231627007	FGD-3-110316	SM 4500-H+B	454625		
60231627008	FGD-2-110316	SM 4500-H+B	454661		
60231627009	FAA-5-110416	SM 4500-H+B	454625		
60231627010	FAA-4-110416	SM 4500-H+B	454625		
60231627011	DUP-110416	SM 4500-H+B	454194		
60231627012	DUP-110316	SM 4500-H+B	454194		
60231627013	FAA-3-110416	SM 4500-H+B	454661		
60231627014	FAA-2-110416	SM 4500-H+B	454661		
60231627001	BAA-6-110316	EPA 300.0	456713		
60231627002	BAA-2-110316	EPA 300.0	456713		
60231627002	BAA-2-110316	EPA 300.0	456831		
60231627003	BAA-4-110316	EPA 300.0	456713		
60231627004	BAA-3-110316	EPA 300.0	456713		
60231627005	FGD-1-110316	EPA 300.0	456713		
60231627006	FGD-4-110316	EPA 300.0	456713		
60231627007	FGD-3-110316	EPA 300.0	456713		
60231627008	FGD-2-110316	EPA 300.0	456713		
60231627008	FGD-2-110316	EPA 300.0	456831		
60231627009	FAA-5-110416	EPA 300.0	456713		
60231627010	FAA-4-110416	EPA 300.0	456713		
60231627011	DUP-110416	EPA 300.0	456713		
60231627011	DUP-110416	EPA 300.0	456831		
60231627012	DUP-110316	EPA 300.0	456713		
60231627013	FAA-3-110416	EPA 300.0	456713		
60231627014	FAA-2-110416	EPA 300.0	456831		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60231627



Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 0.7 / 1.1 / 1.2 / 1.4 Corr. Factor CF +0.7 CF -0.5 Corrected 1.4 / 0.8 / 2.9 / 2.1

Date and initials of person examining contents: pv 11/5/16

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>FAA-4 collected @ 0926</u>
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks: <input checked="" type="checkbox"/> N/A		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

REVIEWED
By HMW at 9:53 am, 11/7/16

Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:

Company: WESTAR ENERGY
 Address: 818 Kansas Ave
 Topeka, KS 66612
 Email To: brandon.l.griffin@westarenergy.com
 Phone: (785) 575-8135 Fax: [blank]
 Requested Due Date/TAT: 7 DAY

Section B Required Project Information:

Report To: Brandon Griffin
 Copy To: Jared Morrison, Heath Hornya
 Company Name: WESTAR ENERGY
 Address: SEE SECTION A
 Reference: [blank]
 Page Project: Heather Wilson, 913-563-1407
 Manager: [blank]
 Project Number: [blank]
 Page Profile #: 9657, 1

Section C Invoice Information:

Site Location: KS
 STATE: [blank]
 REGULATORY AGENCY: [blank]
 NPDES GROUND WATER DRINKING WATER
 RCRA UST OTHER

ITEM #	Valid Matrix Codes	Required Client Information	SAMPLE ID (A-Z, 0-9 / -)	Sample IDs MUST BE UNIQUE	MATRIX CODE	DRINKING WATER DW WASTE WATER WW PRODUCT P SOL/SOLID SL OIL OL W/P W/P AIR AR OTHER OT TISSUE	MATRIX CODE	Section D	
								Section D	Section D
1	BAA-6-110316	WT G	11/3/16 0838	4	Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Page Project No./ Lab I.D.	1822u 1812u 28P/N 01
2	BAA-2-110316	WT G	11/3/16 1002	4	Y/N				
3	BAA-4-110316	WT G	11/3/16 1117	4	Y/N				
4	BAA-3-110316	WT G	11/3/16 1232	4	Y/N				
5	FGD-1-110316	WT G	11/3/16 1355	4	Y/N				
6	FGD-4-110316	WT G	11/3/16 1457	4	Y/N				
7	FGD-3-110316	WT G	11/3/16 1355	4	Y/N				
8	FGD-2-110316	WT G	11/3/16 1640	4	Y/N				
9	F4A-5-110416	WT G	11/4/16 0831	4	Y/N				
10	F4A-4-110416	WT G	11/4/16	4	Y/N				
11	DUP-110416	WT G	11/4/16 0800	4	Y/N				
12	DUP-110316	WT G	11/3/16 0600	4	Y/N				

ITEM #	DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
1	11/3/16	0838		11/3/16	0838		11/3/16	0838	
2	11/3/16	1002		11/3/16	1002		11/3/16	1002	
3	11/3/16	1117		11/3/16	1117		11/3/16	1117	
4	11/3/16	1232		11/3/16	1232		11/3/16	1232	
5	11/3/16	1355		11/3/16	1355		11/3/16	1355	
6	11/3/16	1457		11/3/16	1457		11/3/16	1457	
7	11/3/16	1355		11/3/16	1355		11/3/16	1355	
8	11/3/16	1640		11/3/16	1640		11/3/16	1640	
9	11/4/16	0831		11/4/16	0831		11/4/16	0831	
10	11/4/16			11/4/16			11/4/16		
11	11/4/16	0800		11/4/16	0800		11/4/16	0800	
12	11/3/16	0600		11/3/16	0600		11/3/16	0600	

Section D Required Client Information:

Company: WESTAR ENERGY
 Address: 818 Kansas Ave
 Topeka, KS 66612
 Email To: brandon.l.griffin@westarenergy.com
 Phone: (785) 575-8135 Fax: [blank]
 Requested Due Date/TAT: 7 DAY

Section B Required Project Information:

Report To: Brandon Griffin
 Copy To: Jared Morrison, Heath Hornya
 Company Name: WESTAR ENERGY
 Address: SEE SECTION A
 Reference: [blank]
 Page Project: Heather Wilson, 913-563-1407
 Manager: [blank]
 Project Number: [blank]
 Page Profile #: 9657, 1

Section C Invoice Information:

Site Location: KS
 STATE: [blank]
 REGULATORY AGENCY: [blank]
 NPDES GROUND WATER DRINKING WATER
 RCRA UST OTHER

Section A Required Client Information:

Company: WESTAR ENERGY
 Address: 818 Kansas Ave
 Topeka, KS 66612
 Email To: brandon.l.griffin@westarenergy.com
 Phone: (785) 575-8135 Fax: [blank]
 Requested Due Date/TAT: 7 DAY

Section B Required Project Information:

Report To: Brandon Griffin
 Copy To: Jared Morrison, Heath Hornya
 Company Name: WESTAR ENERGY
 Address: SEE SECTION A
 Reference: [blank]
 Page Project: Heather Wilson, 913-563-1407
 Manager: [blank]
 Project Number: [blank]
 Page Profile #: 9657, 1

Section C Invoice Information:

Site Location: KS
 STATE: [blank]
 REGULATORY AGENCY: [blank]
 NPDES GROUND WATER DRINKING WATER
 RCRA UST OTHER



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

www.pacelabs.com

Section A Required Client Information:

Report To: Brandon Griffin
 Attention: Jared Morrison
 Company Name: WESTAR ENERGY
 Address: 818 Kansas Ave
 Topeka, KS 66612
 Email To: brandon.l.griffin@westarenergy.com
 Purchase Order No.:
 Project Name: JEC CCR Groundwater
 Project Number:
 Phone: (785) 575-8135
 Requested Due Date/TAT: 7 DAY

Section B Required Project Information:

Company Name: WESTAR ENERGY
 Regulatory Agency:
 Address: SEE SECTION A
 NPDES GROUND WATER DRINKING WATER OTHER
 Pace Quote Reference:
 Pace Project Manager: Heather Wilson, 913-563-1407
 Pace Profile #: 9657, 1
 STATE: KS

Section C Invoice Information:

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
 (A-Z, 0-9 / -)
 Sample IDs MUST BE UNIQUE

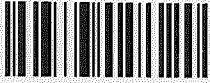
Valid Matrix Codes
 MATRIX CODE
 DRINKING WATER DW
 WATER WT
 WASTE WATER WW
 PRODUCT P
 SOLID/SOLID SL
 OIL OL
 WIFE WF
 AIR AF
 OTHER OT
 TISSUE TS

ITEM #	DATE	TIME	DATE	TIME	SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY):	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)	ADDITIONAL COMMENTS	
													RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION
1	11/4/16	1030	11/4/16	1130	Westar	Brandon Griffin	[Signature]	11/04/16	1.4	Y	Y	X	FAA-3-110416	
2	11/4/16	1130	11/4/16	1130	Westar	Brandon Griffin	[Signature]	11/04/16	1.4	Y	Y	X	FAA-2-110416	
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

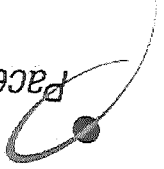
Residual Chlorine (Y/N)
 Page Project No./ Lab I.D.
 1824 1824 20 2811/03

Chain of Custody

WO#: 30201895



30201895



www.paceanalytical.com

Workorder Name: JEC CCR GROUNDWATER
 Owner Received Date: 11/5/2016 Results Requested By: 12/1/2016

Workorder: 60231627

Report To

Heather Wilson
 Pace Analytical Kansas
 9608 Loiret Blvd.
 Lenexa, KS 66219
 Phone (913)599-5665
 Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2,3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

Subcontract To

Requested Analysis

Radium 226 & 228

Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	BPIN	Radium 226 & 228							
1	BAA-6-110316	PS	11/3/2016 08:38	60231627001	Water	2	X							
2	BAA-2-110316	PS	11/3/2016 10:02	60231627002	Water	2	X							001
3	BAA-4-110316	PS	11/3/2016 11:17	60231627003	Water	2	X							002
4	BAA-3-110316	PS	11/3/2016 12:32	60231627004	Water	2	X							003
5	FGD-1-110316	PS	11/3/2016 13:55	60231627005	Water	2	X							004
6	FGD-4-110316	PS	11/3/2016 14:57	60231627006	Water	2	X							005
7	FGD-3-110316	PS	11/3/2016 13:55	60231627007	Water	2	X							006
8	FGD-2-110316	PS	11/3/2016 16:40	60231627008	Water	2	X							007
9	FAA-5-110416	PS	11/3/2016 08:31	60231627009	Water	2	X							008
10	FAA-4-110416	PS	11/3/2016 09:28	60231627010	Water	2	X							009
11	DUP-110416	PS	11/3/2016 06:00	60231627011	Water	2	X							010
12	DUP-110316	PS	11/3/2016 06:00	60231627012	Water	2	X							011
13	FAA-3-110416	PS	11/4/2016 10:30	60231627013	Water	2	X							013
14	FAA-2-110416	PS	11/4/2016 11:30	60231627014	Water	2	X							014

Transfers	Released By	Date/Time	Received	Date/Time	Custody Seal	Received on Ice	Y or N	Samples Intact	Y or N	Comments
1	[Signature]	11/3/16	1200	11/3/16	[Signature]					* Please report total result as well. 11-3-16 09:50
2										
3										

Sample Condition Upon Receipt Pittsburgh



Client Name: Pace Kansas

Project # 30201895

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7044 6056 1954

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KH 11-8-16

Comments:

	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID/Analysis Matrix: <u>WF</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. <u>pH < 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>KH</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>KH</u> Date: <u>11-8-16</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-4
December 2016 Sampling Event
Laboratory Analytical Report

January 20, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60234728

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on December 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60234728001	BAA-6-121916	Water	12/19/16 17:03	12/21/16 07:55
60234728002	BAA-2-122016	Water	12/20/16 09:23	12/21/16 07:55
60234728003	BAA-4-122016	Water	12/20/16 10:17	12/21/16 07:55
60234728004	BAA-3-122016	Water	12/20/16 13:22	12/21/16 07:55

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60234728001	BAA-6-121916	EPA 200.7	ZBM	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60234728002	BAA-2-122016	EPA 200.7	ZBM	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60234728003	BAA-4-122016	EPA 200.7	ZBM	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60234728004	BAA-3-122016	EPA 200.7	ZBM	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	AGO	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-122016 (Lab ID: 60234728002)
- BAA-3-122016 (Lab ID: 60234728004)
- BAA-4-122016 (Lab ID: 60234728003)
- BAA-6-121916 (Lab ID: 60234728001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: January 20, 2017

General Information:

4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-6-121916	Lab ID: 60234728001	Collected: 12/19/16 17:03	Received: 12/21/16 07:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.037	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:33	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/23/16 15:15	12/28/16 13:33	7440-41-7	
Boron, Total Recoverable	1.7	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:33	7440-42-8	
Calcium, Total Recoverable	358	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:33	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:33	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:33	7439-92-1	
Lithium	0.059	mg/L	0.010	1	12/23/16 15:15	12/28/16 13:33	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7440-36-0	
Arsenic, Total Recoverable	0.0013	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/27/16 14:00	12/29/16 14:19	7440-43-9	
Cobalt, Total Recoverable	0.0020	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7440-48-4	
Molybdenum, Total Recoverable	0.0061	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7439-98-7	
Selenium, Total Recoverable	0.0013	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:19	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	12/21/16 15:00	12/22/16 08:55	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	2080	mg/L	5.0	1		12/23/16 08:43		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		12/29/16 11:42		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	195	mg/L	20.0	20		01/13/17 17:05	16887-00-6	
Fluoride	0.60	mg/L	0.20	1		01/11/17 15:54	16984-48-8	
Sulfate	1090	mg/L	100	100		01/13/17 17:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-2-122016	Lab ID: 60234728002	Collected: 12/20/16 09:23		Received: 12/21/16 07:55		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.055	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:36	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/23/16 15:15	12/28/16 13:36	7440-41-7	
Boron, Total Recoverable	1.0	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:36	7440-42-8	
Calcium, Total Recoverable	181	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:36	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:36	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:36	7439-92-1	
Lithium	0.027	mg/L	0.010	1	12/23/16 15:15	12/28/16 13:36	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7440-36-0	
Arsenic, Total Recoverable	0.0056	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/27/16 14:00	12/29/16 14:23	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7440-48-4	
Molybdenum, Total Recoverable	0.032	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:23	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	12/21/16 15:00	12/22/16 08:58	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1180	mg/L	5.0	1		12/23/16 08:52		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		12/29/16 11:44		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	110	mg/L	10.0	10		01/13/17 17:32	16887-00-6	
Fluoride	0.51	mg/L	0.20	1		01/11/17 16:09	16984-48-8	
Sulfate	604	mg/L	50.0	50		01/13/17 17:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-4-122016	Lab ID: 60234728003	Collected: 12/20/16 10:17	Received: 12/21/16 07:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.033	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:38	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/23/16 15:15	12/28/16 13:38	7440-41-7	
Boron, Total Recoverable	0.93	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:38	7440-42-8	
Calcium, Total Recoverable	419	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:38	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:38	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:38	7439-92-1	
Lithium	0.018	mg/L	0.010	1	12/23/16 15:15	12/28/16 13:38	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7440-36-0	
Arsenic, Total Recoverable	0.0077	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/27/16 14:00	12/29/16 14:28	7440-43-9	
Cobalt, Total Recoverable	0.029	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7440-48-4	
Molybdenum, Total Recoverable	0.12	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:28	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	12/21/16 15:00	12/22/16 09:00	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3800	mg/L	5.0	1		12/23/16 08:53		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		12/29/16 11:45		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	175	mg/L	20.0	20		01/13/17 18:00	16887-00-6	
Fluoride	0.65	mg/L	0.20	1		01/11/17 16:25	16984-48-8	
Sulfate	2340	mg/L	200	200		01/13/17 18:14	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-3-122016		Lab ID: 60234728004		Collected: 12/20/16 13:22		Received: 12/21/16 07:55		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.019	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:40	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/23/16 15:15	12/28/16 13:40	7440-41-7		
Boron, Total Recoverable	2.3	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:40	7440-42-8		
Calcium, Total Recoverable	537	mg/L	0.10	1	12/23/16 15:15	12/28/16 13:40	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:40	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	12/23/16 15:15	12/28/16 13:40	7439-92-1		
Lithium	0.10	mg/L	0.010	1	12/23/16 15:15	12/28/16 13:40	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	12/27/16 14:00	12/29/16 14:32	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7440-48-4		
Molybdenum, Total Recoverable	0.0029	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	12/27/16 14:00	12/29/16 14:32	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	12/21/16 15:00	12/22/16 09:02	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3200	mg/L	5.0	1		12/23/16 08:54			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.1	Std. Units	0.10	1		12/29/16 11:46		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	158	mg/L	20.0	20		01/13/17 18:28	16887-00-6		
Fluoride	0.82	mg/L	0.20	1		01/11/17 16:40	16984-48-8		
Sulfate	1950	mg/L	200	200		01/13/17 18:42	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 459920 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1882906 Matrix: Water
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	12/22/16 08:29	

LABORATORY CONTROL SAMPLE: 1882907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0048	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1882908 1882909

Parameter	Units	60234631003 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits		
Mercury	mg/L	ND	.005	.005	0.0057	0.0057	114	113	70-130	1	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 460236 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1884140 Matrix: Water
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	12/28/16 12:26	
Beryllium	mg/L	<0.0010	0.0010	12/28/16 12:26	
Boron	mg/L	<0.10	0.10	12/28/16 12:26	
Calcium	mg/L	<0.10	0.10	12/28/16 12:26	
Chromium	mg/L	<0.0050	0.0050	12/28/16 12:26	
Lead	mg/L	<0.0050	0.0050	12/28/16 12:26	
Lithium	mg/L	<0.010	0.010	12/28/16 12:26	

LABORATORY CONTROL SAMPLE: 1884141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	103	85-115	
Beryllium	mg/L	1	1.0	104	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	10	100	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	0.98	98	85-115	
Lithium	mg/L	1	1.1	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1884142 1884143

Parameter	Units	60234133003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium	mg/L	0.16	1	1	1.2	1.2	104	105	70-130	1	20		
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	102	103	70-130	2	20		
Boron	mg/L	1.7	1	1	2.7	2.7	104	99	70-130	2	20		
Calcium	mg/L	254	10	10	266	262	113	83	70-130	1	20		
Chromium	mg/L	<0.0050	1	1	0.96	0.96	96	96	70-130	0	20		
Lead	mg/L	<0.0050	1	1	0.87	0.86	86	86	70-130	0	20		
Lithium	mg/L	0.21	1	1	1.3	1.3	112	114	70-130	1	20		

MATRIX SPIKE SAMPLE: 1884144

Parameter	Units	60234727003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.031	2	2.2	107	70-130	
Beryllium	mg/L	<0.0010	2	2.1	106	70-130	
Boron	mg/L	3.6	2	5.6	104	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

MATRIX SPIKE SAMPLE:		1884144					
Parameter	Units	60234727003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	291	20	317	128	70-130	
Chromium	mg/L	<0.0050	2	2.0	98	70-130	
Lead	mg/L	<0.0050	2	1.8	92	70-130	
Lithium	mg/L	0.016	2	2.3	116	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 460439 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1884750 Matrix: Water
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	12/29/16 12:25	
Arsenic	mg/L	<0.0010	0.0010	12/29/16 12:25	
Cadmium	mg/L	<0.00050	0.00050	12/29/16 12:25	
Cobalt	mg/L	<0.0010	0.0010	12/29/16 12:25	
Molybdenum	mg/L	<0.0010	0.0010	12/29/16 12:25	
Selenium	mg/L	<0.0010	0.0010	12/29/16 12:25	
Thallium	mg/L	<0.0010	0.0010	12/29/16 12:25	

LABORATORY CONTROL SAMPLE: 1884751

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	98	85-115	
Arsenic	mg/L	.04	0.040	99	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.038	96	85-115	
Molybdenum	mg/L	.04	0.039	98	85-115	
Selenium	mg/L	.04	0.040	101	85-115	
Thallium	mg/L	.04	0.038	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1884752 1884753

Parameter	Units	60234844001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	mg/L	4.2 ug/L	.04	.04	0.041	0.041	93	93	70-130	0	20		
Arsenic	mg/L	26.8 ug/L	.04	.04	0.062	0.061	88	85	70-130	2	20		
Cadmium	mg/L	<0.50 ug/L	.04	.04	0.033	0.034	82	84	70-130	2	20		
Cobalt	mg/L	1.4 ug/L	.04	.04	0.035	0.034	83	83	70-130	0	20		
Molybdenum	mg/L	35.9 ug/L	.04	.04	0.077	0.076	103	99	70-130	2	20		
Selenium	mg/L	6.5 ug/L	.04	.04	0.040	0.041	85	85	70-130	1	20		
Thallium	mg/L	<1.0 ug/L	.04	.04	0.035	0.035	86	86	70-130	0	20		

MATRIX SPIKE SAMPLE: 1884754

Parameter	Units	60234845001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<20.0 ug/L	.04	0.042	88	70-130	
Arsenic	mg/L	21.3 ug/L	.04	0.052	77	70-130	
Cadmium	mg/L	12.3 ug/L	.04	0.048	90	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

MATRIX SPIKE SAMPLE:		1884754					
Parameter	Units	60234845001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	39.8 ug/L	.04	0.075	88	70-130	
Molybdenum	mg/L	156 ug/L	.04	0.20	105	70-130	
Selenium	mg/L	62.7 ug/L	.04	0.091	70	70-130	
Thallium	mg/L	<20.0 ug/L	.04	0.039	90	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 460157

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1883744

Matrix: Water

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	12/23/16 08:37	

LABORATORY CONTROL SAMPLE: 1883745

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	934	93	80-120	

SAMPLE DUPLICATE: 1883746

Parameter	Units	60234727001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1150	1180	3	10	

SAMPLE DUPLICATE: 1883747

Parameter	Units	60234723001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	538	513	5	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 460624 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

SAMPLE DUPLICATE: 1885275

Parameter	Units	60234727003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.5	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 461703 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1889823 Matrix: Water
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	01/11/17 10:36	

LABORATORY CONTROL SAMPLE: 1889824

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1889825 1889826

Parameter	Units	60235399001		60235400001		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Fluoride	mg/L	ND	125	125	132	132	105	106	80-120	0	15		

MATRIX SPIKE SAMPLE: 1889827

Parameter	Units	60235400001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	12.5	13.2	103	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 461949 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1891083 Matrix: Water
 Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	01/13/17 12:13	
Sulfate	mg/L	<1.0	1.0	01/13/17 12:13	

LABORATORY CONTROL SAMPLE: 1891084

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1891085 1891086

Parameter	Units	60235060014		1891086		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	8.4	5	5	13.8	13.4	107	101	80-120	2	15
Sulfate	mg/L	4.6	5	5	9.8	9.8	103	103	80-120	0	15

MATRIX SPIKE SAMPLE: 1891087

Parameter	Units	60235060015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.3	5	17.9	113	80-120	
Sulfate	mg/L	13.0	5	18.3	106	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-6-121916 **Lab ID: 60234728001** Collected: 12/19/16 17:03 Received: 12/21/16 07:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.418 ± 0.593 (1.00) C:NA T:95%	pCi/L	01/19/17 11:52	13982-63-3	
Radium-228	EPA 904.0	1.41 ± 0.518 (0.731) C:66% T:81%	pCi/L	01/19/17 11:36	15262-20-1	
Total Radium	Total Radium Calculation	1.83 ± 1.11 (1.73)	pCi/L	01/20/17 11:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-2-122016 **Lab ID: 60234728002** Collected: 12/20/16 09:23 Received: 12/21/16 07:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.658 ± 0.725 (1.16) C:NA T:88%	pCi/L	01/19/17 12:10	13982-63-3	
Radium-228	EPA 904.0	1.21 ± 0.589 (0.989) C:64% T:70%	pCi/L	01/19/17 12:25	15262-20-1	
Total Radium	Total Radium Calculation	1.87 ± 1.31 (2.15)	pCi/L	01/20/17 11:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-4-122016 **Lab ID: 60234728003** Collected: 12/20/16 10:17 Received: 12/21/16 07:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0831 ± 0.379 (0.225) C:NA T:89%	pCi/L	01/19/17 12:10	13982-63-3	
Radium-228	EPA 904.0	0.249 ± 0.304 (0.642) C:78% T:87%	pCi/L	01/19/17 11:36	15262-20-1	
Total Radium	Total Radium Calculation	0.332 ± 0.683 (0.867)	pCi/L	01/20/17 11:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Sample: BAA-3-122016 **Lab ID: 60234728004** Collected: 12/20/16 13:22 Received: 12/21/16 07:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.166 ± 0.565 (1.09) C:NA T:90%	pCi/L	01/19/17 12:10	13982-63-3	
Radium-228	EPA 904.0	1.95 ± 0.576 (0.588) C:78% T:71%	pCi/L	01/19/17 11:37	15262-20-1	
Total Radium	Total Radium Calculation	2.12 ± 1.14 (1.68)	pCi/L	01/20/17 11:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 245977 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1209835 Matrix: Water

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.657 ± 0.382 (0.688) C:65% T:93%	pCi/L	01/19/17 11:37	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

QC Batch: 245976

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

METHOD BLANK: 1209834

Matrix: Water

Associated Lab Samples: 60234728001, 60234728002, 60234728003, 60234728004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.078 ± 0.356 (0.840) C:NA T:94%	pCi/L	01/19/17 11:14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60234728

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60234728001	BAA-6-121916	EPA 200.7	460236	EPA 200.7	460373
60234728002	BAA-2-122016	EPA 200.7	460236	EPA 200.7	460373
60234728003	BAA-4-122016	EPA 200.7	460236	EPA 200.7	460373
60234728004	BAA-3-122016	EPA 200.7	460236	EPA 200.7	460373
60234728001	BAA-6-121916	EPA 200.8	460439	EPA 200.8	460506
60234728002	BAA-2-122016	EPA 200.8	460439	EPA 200.8	460506
60234728003	BAA-4-122016	EPA 200.8	460439	EPA 200.8	460506
60234728004	BAA-3-122016	EPA 200.8	460439	EPA 200.8	460506
60234728001	BAA-6-121916	EPA 245.1	459920	EPA 245.1	459935
60234728002	BAA-2-122016	EPA 245.1	459920	EPA 245.1	459935
60234728003	BAA-4-122016	EPA 245.1	459920	EPA 245.1	459935
60234728004	BAA-3-122016	EPA 245.1	459920	EPA 245.1	459935
60234728001	BAA-6-121916	EPA 903.1	245976		
60234728002	BAA-2-122016	EPA 903.1	245976		
60234728003	BAA-4-122016	EPA 903.1	245976		
60234728004	BAA-3-122016	EPA 903.1	245976		
60234728001	BAA-6-121916	EPA 904.0	245977		
60234728002	BAA-2-122016	EPA 904.0	245977		
60234728003	BAA-4-122016	EPA 904.0	245977		
60234728004	BAA-3-122016	EPA 904.0	245977		
60234728001	BAA-6-121916	Total Radium Calculation	246983		
60234728002	BAA-2-122016	Total Radium Calculation	246983		
60234728003	BAA-4-122016	Total Radium Calculation	246983		
60234728004	BAA-3-122016	Total Radium Calculation	246983		
60234728001	BAA-6-121916	SM 2540C	460157		
60234728002	BAA-2-122016	SM 2540C	460157		
60234728003	BAA-4-122016	SM 2540C	460157		
60234728004	BAA-3-122016	SM 2540C	460157		
60234728001	BAA-6-121916	SM 4500-H+B	460624		
60234728002	BAA-2-122016	SM 4500-H+B	460624		
60234728003	BAA-4-122016	SM 4500-H+B	460624		
60234728004	BAA-3-122016	SM 4500-H+B	460624		
60234728001	BAA-6-121916	EPA 300.0	461703		
60234728001	BAA-6-121916	EPA 300.0	461949		
60234728002	BAA-2-122016	EPA 300.0	461703		
60234728002	BAA-2-122016	EPA 300.0	461949		
60234728003	BAA-4-122016	EPA 300.0	461703		
60234728003	BAA-4-122016	EPA 300.0	461949		
60234728004	BAA-3-122016	EPA 300.0	461703		
60234728004	BAA-3-122016	EPA 300.0	461949		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60234728



Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 0.8/0.4 Corr. Factor CF +0.7 / CF +0.9 Corrected 1.5/1.1

Date and initials of person examining contents:
pv 12/21/16

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Cyanide water sample checks: <input type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A

Client Notification/ Resolution: Copy COC to Client? Y N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW

Date: 12/21/16

Chain of Custody

WO# : 30206488



30206488



Workorder: 60234728

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 12/21/2016 Results Requested By: 1/16/2017

Report To		Subcontract To					Requested Analysis										LAB USE ONLY							
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600																						
							Preserved Containers																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3																		
1	BAA-6-121916	PS	12/19/2016 17:03	60234728001	Water	2											X	X						
2	BAA-2-122016	PS	12/20/2016 09:23	60234728002	Water	2											X	X						
3	BAA-4-122016	PS	12/20/2016 10:17	60234728003	Water	2											X	X						
4	BAA-3-122016	PS	12/20/2016 13:22	60234728004	Water	2											X	X						
5																								
																	Comments							
Transfers		Released By	Date/Time	Received By		Date/Time																		
1			12/21/16 17:00			12/22/16 00																		
2																								
3																								
Cooler Temperature on Receipt			NA °C	Custody Seal Y or N			Received on Ice Y or N			Samples Intact Y or N														

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30206488



Client Name: Pace KS Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7044 6657 9566

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used NA Type of Ice: Wet Blue None

Cooler Temperature Observed Temp NA °C Correction Factor: NA °C Final Temp: NA °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: PC 12-22-16

Comments:

	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Filtered volume received for Dissolved tests	/			12.
All containers needing preservation have been checked.	/			13.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>PC</u> Date/time of preservation: <u>12-22-16</u>
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	14.
Trip Blank Present:			/	15.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>PC</u> Date: <u>12-22-16</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-5
February 2017 Sampling Event
Laboratory Analytical Report

March 08, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60237753

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on February 11, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60237753001	BAA-6-020817	Water	02/08/17 15:18	02/11/17 09:05
60237753002	BAA-2-020917	Water	02/09/17 09:05	02/11/17 09:05
60237753003	BAA-4-020917	Water	02/09/17 10:23	02/11/17 09:05
60237753004	BAA-3-020917	Water	02/09/17 11:15	02/11/17 09:05
60237753005	DUP-020917	Water	02/09/17 06:00	02/11/17 09:05

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60237753001	BAA-6-020817	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237753002	BAA-2-020917	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237753003	BAA-4-020917	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237753004	BAA-3-020917	EPA 200.7	NDJ	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
60237753005	DUP-020917	EPA 200.7	NDJ	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	NDJ	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	AGO	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 465590

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60237510001,60237510002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1905575)
 - Calcium
- MSD (Lab ID: 1905574)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-020917 (Lab ID: 60237753002)
- BAA-3-020917 (Lab ID: 60237753004)
- BAA-4-020917 (Lab ID: 60237753003)
- BAA-6-020817 (Lab ID: 60237753001)
- DUP-020917 (Lab ID: 60237753005)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: March 08, 2017

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-6-020817		Lab ID: 60237753001		Collected: 02/08/17 15:18		Received: 02/11/17 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.020	mg/L	0.0050	1	02/15/17 16:00	02/17/17 12:59	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/17/17 12:59	7440-41-7		
Boron, Total Recoverable	3.0	mg/L	0.10	1	02/15/17 16:00	02/17/17 12:59	7440-42-8		
Calcium, Total Recoverable	506	mg/L	0.10	1	02/15/17 16:00	02/17/17 12:59	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 12:59	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 12:59	7439-92-1		
Lithium	0.074	mg/L	0.010	1	02/15/17 16:00	02/17/17 12:59	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7440-36-0		
Arsenic, Total Recoverable	0.0014	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	02/15/17 16:00	02/22/17 14:12	7440-43-9		
Cobalt, Total Recoverable	0.0011	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7440-48-4		
Molybdenum, Total Recoverable	0.0047	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:12	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	02/23/17 14:30	02/24/17 13:46	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3110	mg/L	5.0	1		02/14/17 14:31			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.2	Std. Units	0.10	1		02/16/17 09:37		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	207	mg/L	20.0	20		02/15/17 18:11	16887-00-6		
Fluoride	0.62	mg/L	0.20	1		02/14/17 22:57	16984-48-8		
Sulfate	1710	mg/L	200	200		02/15/17 18:25	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-2-020917		Lab ID: 60237753002		Collected: 02/09/17 09:05	Received: 02/11/17 09:05	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.049	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:01	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/17/17 13:01	7440-41-7	
Boron, Total Recoverable	0.92	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:01	7440-42-8	
Calcium, Total Recoverable	172	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:01	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:01	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:01	7439-92-1	
Lithium	0.021	mg/L	0.010	1	02/15/17 16:00	02/17/17 13:01	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7440-36-0	
Arsenic, Total Recoverable	0.0045	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	02/15/17 16:00	02/22/17 14:17	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7440-48-4	
Molybdenum, Total Recoverable	0.031	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:17	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	02/23/17 14:30	02/24/17 13:51	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1170	mg/L	5.0	1		02/16/17 14:43		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.5	Std. Units	0.10	1		02/16/17 09:42		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	103	mg/L	10.0	10		02/15/17 19:07	16887-00-6	
Fluoride	0.50	mg/L	0.20	1		02/14/17 23:11	16984-48-8	
Sulfate	570	mg/L	50.0	50		02/15/17 19:21	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-4-020917		Lab ID: 60237753003		Collected: 02/09/17 10:23		Received: 02/11/17 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.030	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:08	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/17/17 13:08	7440-41-7		
Boron, Total Recoverable	0.84	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:08	7440-42-8		
Calcium, Total Recoverable	394	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:08	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:08	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:08	7439-92-1		
Lithium	0.010	mg/L	0.010	1	02/15/17 16:00	02/17/17 13:08	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7440-36-0		
Arsenic, Total Recoverable	0.0089	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	02/15/17 16:00	02/22/17 14:21	7440-43-9		
Cobalt, Total Recoverable	0.030	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7440-48-4		
Molybdenum, Total Recoverable	0.12	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:21	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	02/23/17 14:30	02/24/17 13:53	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	4080	mg/L	5.0	1		02/16/17 14:44			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.2	Std. Units	0.10	1		02/16/17 09:43		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	171	mg/L	20.0	20		02/15/17 19:35	16887-00-6		
Fluoride	0.34	mg/L	0.20	1		02/14/17 23:54	16984-48-8		
Sulfate	2320	mg/L	200	200		02/15/17 19:49	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-3-020917		Lab ID: 60237753004		Collected: 02/09/17 11:15		Received: 02/11/17 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.011	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:10	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/17/17 13:10	7440-41-7		
Boron, Total Recoverable	2.1	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:10	7440-42-8		
Calcium, Total Recoverable	519	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:10	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:10	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:10	7439-92-1		
Lithium	0.083	mg/L	0.010	1	02/15/17 16:00	02/17/17 13:10	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	02/15/17 16:00	02/22/17 14:25	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7440-48-4		
Molybdenum, Total Recoverable	0.0015	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:25	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	02/23/17 14:30	02/24/17 13:55	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3380	mg/L	5.0	1		02/16/17 14:45			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.2	Std. Units	0.10	1		02/16/17 09:45		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	156	mg/L	20.0	20		02/15/17 20:03	16887-00-6		
Fluoride	0.86	mg/L	0.20	1		02/15/17 00:09	16984-48-8		
Sulfate	2050	mg/L	200	200		02/15/17 20:17	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: DUP-020917		Lab ID: 60237753005		Collected: 02/09/17 06:00		Received: 02/11/17 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.048	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:13	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/17/17 13:13	7440-41-7		
Boron, Total Recoverable	1.1	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:13	7440-42-8		
Calcium, Total Recoverable	197	mg/L	0.10	1	02/15/17 16:00	02/17/17 13:13	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:13	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	02/15/17 16:00	02/17/17 13:13	7439-92-1		
Lithium	0.015	mg/L	0.010	1	02/15/17 16:00	02/17/17 13:13	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7440-36-0		
Arsenic, Total Recoverable	0.0061	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	02/15/17 16:00	02/22/17 14:30	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7440-48-4		
Molybdenum, Total Recoverable	0.042	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	02/15/17 16:00	02/22/17 14:30	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	02/23/17 14:30	02/24/17 14:15	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1300	mg/L	5.0	1		02/16/17 14:45			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.6	Std. Units	0.10	1		02/16/17 09:40		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	125	mg/L	10.0	10		02/15/17 20:31	16887-00-6		
Fluoride	0.49	mg/L	0.20	1		02/15/17 00:23	16984-48-8		
Sulfate	696	mg/L	50.0	50		02/15/17 20:44	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 466591 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1909505 Matrix: Water
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	02/24/17 13:35	

LABORATORY CONTROL SAMPLE: 1909506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0048	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1909507 1909508

Parameter	Units	60238043001 Result	MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result							
Mercury	mg/L	ND	.005	.005	0.0053	0.0051	107	102	70-130	5	20		

MATRIX SPIKE SAMPLE: 1909509

Parameter	Units	60237753001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.00020	.005	0.0048	93	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465590 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1905571 Matrix: Water
Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	02/17/17 12:14	
Beryllium	mg/L	<0.0010	0.0010	02/17/17 12:14	
Boron	mg/L	<0.10	0.10	02/17/17 12:14	
Calcium	mg/L	<0.10	0.10	02/17/17 12:14	
Chromium	mg/L	<0.0050	0.0050	02/17/17 12:14	
Lead	mg/L	<0.0050	0.0050	02/17/17 12:14	
Lithium	mg/L	<0.010	0.010	02/17/17 12:14	

LABORATORY CONTROL SAMPLE: 1905572

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.97	97	85-115	
Beryllium	mg/L	1	0.98	98	85-115	
Boron	mg/L	1	0.92	92	85-115	
Calcium	mg/L	10	9.7	97	85-115	
Chromium	mg/L	1	0.95	95	85-115	
Lead	mg/L	1	0.96	96	85-115	
Lithium	mg/L	1	1.0	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1905573 1905574

Parameter	Units	60237510001		60237510002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
Barium	mg/L	0.076	1	1	0.99	0.98	92	91	70-130	1	20		
Beryllium	mg/L	<0.0010	1	1	0.93	0.92	93	92	70-130	1	20		
Boron	mg/L	0.74	1	1	1.7	1.7	93	91	70-130	1	20		
Calcium	mg/L	151	10	10	159	156	82	49	70-130	2	20	M1	
Chromium	mg/L	<0.0050	1	1	0.91	0.91	91	91	70-130	0	20		
Lead	mg/L	<0.0050	1	1	0.88	0.88	88	88	70-130	0	20		
Lithium	mg/L	0.024	1	1	0.98	0.97	95	95	70-130	1	20		

MATRIX SPIKE SAMPLE: 1905575

Parameter	Units	60237510002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.30	1	1.2	92	70-130	
Beryllium	mg/L	<0.0010	1	0.93	93	70-130	
Boron	mg/L	0.23	1	1.1	91	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

MATRIX SPIKE SAMPLE:		1905575					
Parameter	Units	60237510002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	170	10	175	53	70-130	M1
Chromium	mg/L	<0.0050	1	0.91	91	70-130	
Lead	mg/L	<0.0050	1	0.88	88	70-130	
Lithium	mg/L	<0.010	1	0.97	96	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465593 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1905588 Matrix: Water
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	02/22/17 12:27	
Arsenic	mg/L	<0.0010	0.0010	02/22/17 12:27	
Cadmium	mg/L	<0.00050	0.00050	02/22/17 12:27	
Cobalt	mg/L	<0.0010	0.0010	02/22/17 12:27	
Molybdenum	mg/L	<0.0010	0.0010	02/22/17 12:27	
Selenium	mg/L	<0.0010	0.0010	02/22/17 12:27	
Thallium	mg/L	<0.0010	0.0010	02/22/17 12:27	

LABORATORY CONTROL SAMPLE: 1905589

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	98	85-115	
Arsenic	mg/L	.04	0.040	99	85-115	
Cadmium	mg/L	.04	0.040	101	85-115	
Cobalt	mg/L	.04	0.039	97	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.040	100	85-115	
Thallium	mg/L	.04	0.037	93	85-115	

MATRIX SPIKE SAMPLE: 1905590

Parameter	Units	60237510003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.035	88	70-130	
Arsenic	mg/L	0.12	.04	0.17	110	70-130	
Cadmium	mg/L	<0.00050	.04	0.040	99	70-130	
Cobalt	mg/L	0.013	.04	0.051	94	70-130	
Molybdenum	mg/L	0.0022	.04	0.040	94	70-130	
Selenium	mg/L	<0.0010	.04	0.037	91	70-130	
Thallium	mg/L	<0.0010	.04	0.038	93	70-130	

MATRIX SPIKE SAMPLE: 1905592

Parameter	Units	60237510004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.039	98	70-130	
Arsenic	mg/L	0.0017	.04	0.042	100	70-130	
Cadmium	mg/L	<0.00050	.04	0.039	98	70-130	
Cobalt	mg/L	0.0017	.04	0.039	94	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

MATRIX SPIKE SAMPLE: 1905592		60237510004	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Molybdenum	mg/L	0.042	.04	0.084	106	70-130	
Selenium	mg/L	<0.0010	.04	0.039	97	70-130	
Thallium	mg/L	<0.0010	.04	0.037	91	70-130	

SAMPLE DUPLICATE: 1909305

Parameter	Units	60237510003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Antimony	mg/L	<0.0010	<0.0010		20	
Arsenic	mg/L	0.12	0.12	0	20	
Cadmium	mg/L	<0.00050	<0.00050		20	
Cobalt	mg/L	0.013	0.014	1	20	
Molybdenum	mg/L	0.0022	0.0022	2	20	
Selenium	mg/L	<0.0010	<0.0010		20	
Thallium	mg/L	<0.0010	<0.0010		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465477	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60237753001	

METHOD BLANK: 1905096 Matrix: Water

Associated Lab Samples: 60237753001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	02/14/17 14:20	

LABORATORY CONTROL SAMPLE: 1905097

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	982	98	80-120	

SAMPLE DUPLICATE: 1905098

Parameter	Units	60237584001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	971	980	1	10	

SAMPLE DUPLICATE: 1905099

Parameter	Units	60237681002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1030	987	4	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465749

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1906453

Matrix: Water

Associated Lab Samples: 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	02/16/17 14:39	

LABORATORY CONTROL SAMPLE: 1906454

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	967	97	80-120	

SAMPLE DUPLICATE: 1906455

Parameter	Units	60237681003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	977	980	0	10	

SAMPLE DUPLICATE: 1906456

Parameter	Units	60237753003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4080	4040	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465627 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

SAMPLE DUPLICATE: 1905773

Parameter	Units	60237753001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465470 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1905076 Matrix: Water
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	02/14/17 18:08	

LABORATORY CONTROL SAMPLE: 1905077

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1905078 1905079

Parameter	Units	60237510001		60237510002		60237510003		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Fluoride	mg/L	0.32	2.5	2.5	3.0	3.0	106	106	80-120	1	15

MATRIX SPIKE SAMPLE: 1905080

Parameter	Units	60237510002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.47	2.5	3.1	105	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 465543 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1905374 Matrix: Water
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	02/15/17 10:46	
Sulfate	mg/L	<1.0	1.0	02/15/17 10:46	

LABORATORY CONTROL SAMPLE: 1905375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	99	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1905376 1905377

Parameter	Units	60237510002		60237510003		60237510003		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chloride	mg/L	235	100	100	329	332	94	97	80-120	1	15
Sulfate	mg/L	165	100	100	260	263	96	99	80-120	1	15

MATRIX SPIKE SAMPLE: 1905378

Parameter	Units	60237510003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	186	100	287	101	80-120	
Sulfate	mg/L	122	100	223	102	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-6-020817 **Lab ID: 60237753001** Collected: 02/08/17 15:18 Received: 02/11/17 09:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.07 ± 0.611 (0.561) C:NA T:84%	pCi/L	03/06/17 12:31	13982-63-3	
Radium-228	EPA 904.0	2.37 ± 0.657 (0.707) C:92% T:72%	pCi/L	03/07/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	3.44 ± 1.27 (1.27)	pCi/L	03/07/17 20:54	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-2-020917 **Lab ID: 60237753002** Collected: 02/09/17 09:05 Received: 02/11/17 09:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.210 ± 0.455 (0.840) C:NA T:91%	pCi/L	03/06/17 12:45	13982-63-3	
Radium-228	EPA 904.0	0.735 ± 0.464 (0.862) C:64% T:81%	pCi/L	03/07/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	0.945 ± 0.919 (1.70)	pCi/L	03/07/17 20:54	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-4-020917 **Lab ID: 60237753003** Collected: 02/09/17 10:23 Received: 02/11/17 09:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0743 ± 0.437 (0.893) C:NA T:88%	pCi/L	03/06/17 12:45	13982-63-3	
Radium-228	EPA 904.0	1.03 ± 0.459 (0.724) C:64% T:86%	pCi/L	03/07/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	1.10 ± 0.896 (1.62)	pCi/L	03/07/17 20:54	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: BAA-3-020917 **Lab ID: 60237753004** Collected: 02/09/17 11:15 Received: 02/11/17 09:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.278 ± 0.668 (1.21) C:NA T:91%	pCi/L	03/06/17 12:45	13982-63-3	
Radium-228	EPA 904.0	1.75 ± 0.703 (1.04) C:50% T:77%	pCi/L	03/07/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	2.03 ± 1.37 (2.25)	pCi/L	03/07/17 20:54	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Sample: DUP-020917 **Lab ID: 60237753005** Collected: 02/09/17 06:00 Received: 02/11/17 09:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.153 ± 0.521 (1.01) C:NA T:87%	pCi/L	03/06/17 12:45	13982-63-3	
Radium-228	EPA 904.0	1.25 ± 0.565 (0.922) C:60% T:81%	pCi/L	03/07/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	1.40 ± 1.09 (1.93)	pCi/L	03/07/17 20:54	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 250470

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1232539

Matrix: Water

Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.158 ± 0.276 (0.596) C:68% T:93%	pCi/L	03/07/17 11:43	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

QC Batch: 250469 Analysis Method: EPA 903.1
 QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

METHOD BLANK: 1232538 Matrix: Water
 Associated Lab Samples: 60237753001, 60237753002, 60237753003, 60237753004, 60237753005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.321 (0.654) C:NA T:91%	pCi/L	03/06/17 12:09	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60237753001	BAA-6-020817	EPA 200.7	465590	EPA 200.7	465696
60237753002	BAA-2-020917	EPA 200.7	465590	EPA 200.7	465696
60237753003	BAA-4-020917	EPA 200.7	465590	EPA 200.7	465696
60237753004	BAA-3-020917	EPA 200.7	465590	EPA 200.7	465696
60237753005	DUP-020917	EPA 200.7	465590	EPA 200.7	465696
60237753001	BAA-6-020817	EPA 200.8	465593	EPA 200.8	465698
60237753002	BAA-2-020917	EPA 200.8	465593	EPA 200.8	465698
60237753003	BAA-4-020917	EPA 200.8	465593	EPA 200.8	465698
60237753004	BAA-3-020917	EPA 200.8	465593	EPA 200.8	465698
60237753005	DUP-020917	EPA 200.8	465593	EPA 200.8	465698
60237753001	BAA-6-020817	EPA 245.1	466591	EPA 245.1	466620
60237753002	BAA-2-020917	EPA 245.1	466591	EPA 245.1	466620
60237753003	BAA-4-020917	EPA 245.1	466591	EPA 245.1	466620
60237753004	BAA-3-020917	EPA 245.1	466591	EPA 245.1	466620
60237753005	DUP-020917	EPA 245.1	466591	EPA 245.1	466620
60237753001	BAA-6-020817	EPA 903.1	250469		
60237753002	BAA-2-020917	EPA 903.1	250469		
60237753003	BAA-4-020917	EPA 903.1	250469		
60237753004	BAA-3-020917	EPA 903.1	250469		
60237753005	DUP-020917	EPA 903.1	250469		
60237753001	BAA-6-020817	EPA 904.0	250470		
60237753002	BAA-2-020917	EPA 904.0	250470		
60237753003	BAA-4-020917	EPA 904.0	250470		
60237753004	BAA-3-020917	EPA 904.0	250470		
60237753005	DUP-020917	EPA 904.0	250470		
60237753001	BAA-6-020817	Total Radium Calculation	251399		
60237753002	BAA-2-020917	Total Radium Calculation	251399		
60237753003	BAA-4-020917	Total Radium Calculation	251399		
60237753004	BAA-3-020917	Total Radium Calculation	251399		
60237753005	DUP-020917	Total Radium Calculation	251399		
60237753001	BAA-6-020817	SM 2540C	465477		
60237753002	BAA-2-020917	SM 2540C	465749		
60237753003	BAA-4-020917	SM 2540C	465749		
60237753004	BAA-3-020917	SM 2540C	465749		
60237753005	DUP-020917	SM 2540C	465749		
60237753001	BAA-6-020817	SM 4500-H+B	465627		
60237753002	BAA-2-020917	SM 4500-H+B	465627		
60237753003	BAA-4-020917	SM 4500-H+B	465627		
60237753004	BAA-3-020917	SM 4500-H+B	465627		
60237753005	DUP-020917	SM 4500-H+B	465627		
60237753001	BAA-6-020817	EPA 300.0	465470		
60237753001	BAA-6-020817	EPA 300.0	465543		
60237753002	BAA-2-020917	EPA 300.0	465470		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60237753

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60237753002	BAA-2-020917	EPA 300.0	465543		
60237753003	BAA-4-020917	EPA 300.0	465470		
60237753003	BAA-4-020917	EPA 300.0	465543		
60237753004	BAA-3-020917	EPA 300.0	465470		
60237753004	BAA-3-020917	EPA 300.0	465543		
60237753005	DUP-020917	EPA 300.0	465470		
60237753005	DUP-020917	EPA 300.0	465543		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60237753
Barcode
60237753

Client Name: Nestar

Courier: FedEx [] UPS [] VIA [x] Clay [] PEX [] ECI [] Pace [] Xroads [] Client [] Other []

Tracking #: Pace Shipping Label Used? Yes [] No []

Custody Seal on Cooler/Box Present: Yes [x] No [] Seals intact: Yes [x] No []

Packing Material: Bubble Wrap [] Bubble Bags [] Foam [] None [x] Other []

Thermometer Used: CF +1.5 T-266 / CF +0.9 T-239 Type of Ice: Wet [x] Blue [] None []

Cooler Temperature (°C): As-read 16 Corr. Factor CF +1.5 / CF +0.9 Corrected 31

Date and initials of person examining contents: JG 2/11/17

Temperature should be above freezing to 6°C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and handwritten notes. Includes rows for Chain of Custody, Short Hold Time analyses, Rush Turn Around Time, etc.

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Brandon Griffin Date/Time: 2/13/17

Comments/ Resolution: DUP-020917 should be reported on this project. HMW 2/13/17

Project Manager Review:

REVIEWED
By hwilson at 9:16 am, 2/13/17

Date:

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		REGULATORY AGENCY	
Company: WESTAR ENERGY		Report To: Brandon Griffin		Attention: Jared Morrison		<input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Address: 818 Kansas Ave Topeka, KS 66612		Copy To: Jared Morrison, Heath Horny		Company Name: WESTAR ENERGY		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
Email To: brandon.l.griffin@westarenergy.com		Purchase Order No.:		Pace Quote Reference:		Site Location STATE: <u>KS</u>	
Phone: (785) 575-8135 Fax:		Project Name: JEC CCR Groundwater		Pace Project Manager: Heather Wilson, 913-563-1407			
Requested Due Date/TAT: 7 DAY		Project Number:		Pace Profile #: 9657, 1			

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives									Analysis Test ↓ Analysis Test ↓	Requested Analysis Filtered (Y/N)									Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	200.7 Total Metals*		200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, F, SO ₄	4500 H+B	2540C TDS	Radium 226	Radium 228						
					DATE	TIME	DATE	TIME																									
1	BAA-6-020817		WT G	G			2/8	1518	4	1	3																						
2	BAA-2-020917		WT G	G			2/9	0905	4	1	3																						
3	BAA-4-020917		WT G	G			2/9	1023	4	1	3																						
4	BAA-3-020917		WT G	G			2/9	1115	4	1	3																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	<i>[Signature]</i> / Westar	2/10/17	1200	<i>[Signature]</i> / Westar	2/1/12	0905	2.1	Y	Y	Y
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>Brandon Griffin</i>				
SIGNATURE of SAMPLER:	<i>[Signature]</i>				
DATE Signed (MM/DD/YY):		02/10/17			

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

WO#: 30210711



30210711



Workorder: 60237753

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 2/11/2017 Results Requested By: 3/7/2017

Report To		Subcontract To						Requested Analysis										LAB USE ONLY							
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600						Radium-226 & Total Sum Radium	Radium-228																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3	Preserved Containers																		
1	BAA-6-020817	PS	2/8/2017 15:18	60237753001	Water	2																			001
2	BAA-2-020917	PS	2/9/2017 09:05	60237753002	Water	2																			002
3	BAA-4-020917	PS	2/9/2017 10:23	60237753003	Water	2																			003
4	BAA-3-020917	PS	2/9/2017 11:15	60237753004	Water	2																	004		
5	DUP-020917	PS	2/9/2017 06:00	60237753005	Water	2																	005		
Comments																									
Transfers		Released By		Date/Time		Received By		Date/Time																	
1		<i>[Signature]</i>		2/13/17 2:00		<i>Ben Mantun</i>		2-14-17 10:30																	
2																									
3																									
Cooler Temperature on Receipt		N/A °C		Custody Seal		Y or N		Received on Ice		Y or N		Samples Intact										Y or N			

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

BLM



Client Name: Pace Kansas Project # 30210711

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7044 6659 5275

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and initials of person examining contents: BLM 2-14-17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/	/		1.
Chain of Custody Filled Out:	/	/		2.
Chain of Custody Relinquished:	/	/		3.
Sampler Name & Signature on COC:	/	/		4.
Sample Labels match COC:	/	/		5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/	/		6.
Short Hold Time Analysis (<72hr remaining):		/	/	7.
Rush Turn Around Time Requested:		/	/	8.
Sufficient Volume:	/	/		9.
Correct Containers Used:	/	/		10.
-Pace Containers Used:	/	/		
Containers Intact:	/	/		11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests	/	/		14.
All containers have been checked for preservation.	/	/		15.
All containers needing preservation are found to be in compliance with EPA recommendation.	/	/		
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed <u>BLM</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):		/	/	16.
Trip Blank Present:		/	/	17.
Trip Blank Custody Seals Present		/	/	
Rad Aqueous Samples Screened > 0.5 mrem/hr	/			Initial when completed: <u>BLM</u> Date: <u>2-14-17</u>

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____ Contacted By: _____
Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-6
April 2017 Sampling Event
Laboratory Analytical Report

May 03, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR Groundwater
Pace Project No.: 60241710

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on April 11, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60241710001	BAA-6-041017	Water	04/10/17 10:13	04/11/17 07:15
60241710002	BAA-4-041017	Water	04/10/17 11:30	04/11/17 07:15
60241710003	BAA-3-041017	Water	04/10/17 13:31	04/11/17 07:15
60241710004	BAA-2-041017	Water	04/10/17 14:47	04/11/17 07:15
60241710005	DUP-041017	Water	04/10/17 07:00	04/11/17 07:15

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60241710001	BAA-6-041017	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
60241710002	BAA-4-041017	EPA 300.0	RAD	3	PASI-K
		EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
60241710003	BAA-3-041017	SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
		EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
60241710004	BAA-2-041017	SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
		EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60241710005	DUP-041017	Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
		EPA 200.7	JGP	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	TDS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 473696

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- BAA-4-041017 (Lab ID: 60241710002)
 - Selenium, Total Recoverable
 - Thallium, Total Recoverable

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-041017 (Lab ID: 60241710004)
- BAA-3-041017 (Lab ID: 60241710003)
- BAA-4-041017 (Lab ID: 60241710002)
- BAA-6-041017 (Lab ID: 60241710001)
- DUP-041017 (Lab ID: 60241710005)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: May 03, 2017

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 472240

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60241579007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1933694)
- Sulfate

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-6-041017		Lab ID: 60241710001	Collected: 04/10/17 10:13	Received: 04/11/17 07:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.019	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:31	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/24/17 14:31	7440-41-7	
Boron, Total Recoverable	3.4	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:31	7440-42-8	
Calcium, Total Recoverable	551	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:31	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:31	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:31	7439-92-1	
Lithium	0.081	mg/L	0.010	1	04/21/17 11:35	04/24/17 14:31	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7440-36-0	
Arsenic, Total Recoverable	0.0014	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	04/21/17 11:35	04/28/17 10:07	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7440-48-4	
Molybdenum, Total Recoverable	0.0044	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:07	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	04/13/17 08:30	04/13/17 11:48	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3430	mg/L	5.0	1		04/13/17 12:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	6.9	Std. Units	0.10	1		04/11/17 14:03		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	215	mg/L	20.0	20		04/11/17 19:49	16887-00-6	
Fluoride	0.72	mg/L	0.20	1		04/11/17 19:34	16984-48-8	
Sulfate	1860	mg/L	200	200		04/11/17 20:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-4-041017		Lab ID: 60241710002		Collected: 04/10/17 11:30		Received: 04/11/17 07:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.031	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:35	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/24/17 14:35	7440-41-7		
Boron, Total Recoverable	1.0	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:35	7440-42-8		
Calcium, Total Recoverable	374	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:35	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:35	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:35	7439-92-1		
Lithium	0.017	mg/L	0.010	1	04/21/17 11:35	04/24/17 14:35	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:11	7440-36-0		
Arsenic, Total Recoverable	0.0094	mg/L	0.0020	2	04/21/17 11:35	05/02/17 11:53	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	04/21/17 11:35	04/28/17 11:53	7440-43-9		
Cobalt, Total Recoverable	0.021	mg/L	0.0020	2	04/21/17 11:35	05/02/17 11:53	7440-48-4		
Molybdenum, Total Recoverable	0.10	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:11	7439-98-7		
Selenium, Total Recoverable	<0.0020	mg/L	0.0020	2	04/21/17 11:35	05/03/17 14:48	7782-49-2	D3	
Thallium, Total Recoverable	<0.0020	mg/L	0.0020	2	04/21/17 11:35	05/02/17 11:53	7440-28-0	D3	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	04/13/17 08:30	04/13/17 11:50	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3520	mg/L	5.0	1		04/13/17 12:50			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.0	Std. Units	0.10	1		04/11/17 14:04		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	135	mg/L	20.0	20		04/11/17 21:03	16887-00-6		
Fluoride	0.45	mg/L	0.20	1		04/11/17 20:48	16984-48-8		
Sulfate	2020	mg/L	200	200		04/11/17 21:18	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-3-041017		Lab ID: 60241710003	Collected: 04/10/17 13:31	Received: 04/11/17 07:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.0098	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:39	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/24/17 14:39	7440-41-7	
Boron, Total Recoverable	2.3	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:39	7440-42-8	
Calcium, Total Recoverable	539	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:39	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:39	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:39	7439-92-1	
Lithium	0.089	mg/L	0.010	1	04/21/17 11:35	04/24/17 14:39	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	04/21/17 11:35	04/28/17 10:15	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7440-48-4	
Molybdenum, Total Recoverable	0.0016	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:15	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	04/13/17 08:30	04/13/17 11:52	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3630	mg/L	5.0	1		04/13/17 12:51		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.0	Std. Units	0.10	1		04/11/17 14:06		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	157	mg/L	20.0	20		04/11/17 21:48	16887-00-6	
Fluoride	1.0	mg/L	0.20	1		04/11/17 21:33	16984-48-8	
Sulfate	2080	mg/L	200	200		04/11/17 22:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-2-041017	Lab ID: 60241710004	Collected: 04/10/17 14:47	Received: 04/11/17 07:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.043	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:42	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/24/17 14:42	7440-41-7	
Boron, Total Recoverable	0.90	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:42	7440-42-8	
Calcium, Total Recoverable	165	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:42	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:42	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:42	7439-92-1	
Lithium	0.023	mg/L	0.010	1	04/21/17 11:35	04/24/17 14:42	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7440-36-0	
Arsenic, Total Recoverable	0.0027	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	04/21/17 11:35	04/28/17 10:18	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7440-48-4	
Molybdenum, Total Recoverable	0.026	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:18	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	04/13/17 08:30	04/13/17 11:55	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1150	mg/L	5.0	1		04/13/17 12:51		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		04/11/17 14:09		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	95.3	mg/L	10.0	10		04/11/17 22:33	16887-00-6	
Fluoride	0.57	mg/L	0.20	1		04/11/17 22:18	16984-48-8	
Sulfate	536	mg/L	50.0	50		04/11/17 22:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: DUP-041017		Lab ID: 60241710005	Collected: 04/10/17 07:00	Received: 04/11/17 07:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.018	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:46	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/24/17 14:46	7440-41-7	
Boron, Total Recoverable	3.0	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:46	7440-42-8	
Calcium, Total Recoverable	532	mg/L	0.10	1	04/21/17 11:35	04/24/17 14:46	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:46	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	04/21/17 11:35	04/24/17 14:46	7439-92-1	
Lithium	0.071	mg/L	0.010	1	04/21/17 11:35	04/24/17 14:46	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7440-36-0	
Arsenic, Total Recoverable	0.0012	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	04/21/17 11:35	04/28/17 10:22	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7440-48-4	
Molybdenum, Total Recoverable	0.0042	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	04/21/17 11:35	04/28/17 10:22	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	04/13/17 08:30	04/13/17 11:57	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3370	mg/L	5.0	1		04/13/17 12:52		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.0	Std. Units	0.10	1		04/11/17 14:02		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	208	mg/L	50.0	50		04/11/17 23:02	16887-00-6	
Fluoride	0.71	mg/L	0.20	1		04/11/17 23:47	16984-48-8	
Sulfate	1760	mg/L	200	200		04/12/17 18:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 472511 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1934867 Matrix: Water
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	04/13/17 11:20	

LABORATORY CONTROL SAMPLE: 1934868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0053	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1934869 1934870

Parameter	Units	60241856001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	<0.20 ug/L	.005	.005	0.0046	0.0046	92	91	70-130	1	20	

MATRIX SPIKE SAMPLE: 1934871

Parameter	Units	60241857001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.20 ug/L	.005	0.0047	94	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 473694 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1939836 Matrix: Water
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	04/24/17 13:51	
Beryllium	mg/L	<0.0010	0.0010	04/24/17 13:51	
Boron	mg/L	<0.10	0.10	04/24/17 13:51	
Calcium	mg/L	<0.10	0.10	04/24/17 13:51	
Chromium	mg/L	<0.0050	0.0050	04/24/17 13:51	
Lead	mg/L	<0.0050	0.0050	04/24/17 13:51	
Lithium	mg/L	<0.010	0.010	04/24/17 13:51	

LABORATORY CONTROL SAMPLE: 1939839

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	103	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	10.3	103	85-115	
Chromium	mg/L	1	1.0	103	85-115	
Lead	mg/L	1	1.1	107	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939840 1939841

Parameter	Units	60241636001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium	mg/L	0.31	1	1	1.3	1.3	102	102	70-130	1	20		
Beryllium	mg/L	<0.0010	1	1	1.0	1.0	102	101	70-130	1	20		
Boron	mg/L	<0.10	1	1	1.1	1.1	104	102	70-130	1	20		
Calcium	mg/L	98.2	10	10	106	105	83	71	70-130	1	20		
Chromium	mg/L	<0.0050	1	1	1.0	1.0	102	101	70-130	1	20		
Lead	mg/L	<0.0050	1	1	1.0	1.0	102	102	70-130	1	20		
Lithium	mg/L	0.011	1	1	1.0	1.0	102	101	70-130	1	20		

MATRIX SPIKE SAMPLE: 1939842

Parameter	Units	60241636002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.089	1	1.1	103	70-130	
Beryllium	mg/L	<0.0010	1	1.0	101	70-130	
Boron	mg/L	0.22	1	1.3	104	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

MATRIX SPIKE SAMPLE:		1939842					
Parameter	Units	60241636002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	150	10	160	96	70-130	
Chromium	mg/L	<0.0050	1	1.0	103	70-130	
Lead	mg/L	<0.0050	1	1.0	103	70-130	
Lithium	mg/L	<0.010	1	1.0	102	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 473696 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1939849 Matrix: Water
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	04/28/17 09:17	
Arsenic	mg/L	<0.0010	0.0010	04/28/17 09:17	
Cadmium	mg/L	<0.00050	0.00050	04/28/17 09:17	
Cobalt	mg/L	<0.0010	0.0010	04/28/17 09:17	
Molybdenum	mg/L	<0.0010	0.0010	04/28/17 09:17	
Selenium	mg/L	<0.0010	0.0010	04/28/17 09:17	
Thallium	mg/L	<0.0010	0.0010	04/28/17 09:17	

LABORATORY CONTROL SAMPLE: 1939851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	97	85-115	
Arsenic	mg/L	.04	0.037	93	85-115	
Cadmium	mg/L	.04	0.039	97	85-115	
Cobalt	mg/L	.04	0.040	100	85-115	
Molybdenum	mg/L	.04	0.042	106	85-115	
Selenium	mg/L	.04	0.035	88	85-115	
Thallium	mg/L	.04	0.039	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939852 1939853

Parameter	Units	60241636003		60241636004		1939852		1939853		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec	MS % Rec	MSD % Rec				
Antimony	mg/L	<0.0010	.04	.04	.04	0.038	0.038	96	95	70-130	1	20	
Arsenic	mg/L	<0.0010	.04	.04	.04	0.037	0.037	92	90	70-130	3	20	
Cadmium	mg/L	<0.00050	.04	.04	.04	0.037	0.036	92	90	70-130	2	20	
Cobalt	mg/L	<0.0010	.04	.04	.04	0.038	0.037	94	93	70-130	1	20	
Molybdenum	mg/L	0.0058	.04	.04	.04	0.048	0.048	106	104	70-130	2	20	
Selenium	mg/L	<0.0010	.04	.04	.04	0.034	0.034	86	84	70-130	3	20	
Thallium	mg/L	<0.0010	.04	.04	.04	0.042	0.041	106	103	70-130	2	20	

MATRIX SPIKE SAMPLE: 1939854

Parameter	Units	60241636004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.038	95	70-130	
Arsenic	mg/L	<0.0010	.04	0.036	90	70-130	
Cadmium	mg/L	<0.00050	.04	0.036	89	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

MATRIX SPIKE SAMPLE:		1939854					
Parameter	Units	60241636004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.037	92	70-130	
Molybdenum	mg/L	0.0039	.04	0.045	103	70-130	
Selenium	mg/L	<0.0010	.04	0.034	84	70-130	
Thallium	mg/L	<0.0010	.04	0.042	106	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 472660

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1935328

Matrix: Water

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	04/13/17 12:38	

LABORATORY CONTROL SAMPLE: 1935329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	998	100	80-120	

SAMPLE DUPLICATE: 1935330

Parameter	Units	60241131007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1670	1710	2	10	H3

SAMPLE DUPLICATE: 1935331

Parameter	Units	60241741002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	204	207	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 472271 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

SAMPLE DUPLICATE: 1933836

Parameter	Units	60241636001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.3	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 472240 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1933690 Matrix: Water
 Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	04/11/17 14:51	
Fluoride	mg/L	<0.20	0.20	04/11/17 14:51	
Sulfate	mg/L	<1.0	1.0	04/11/17 14:51	

LABORATORY CONTROL SAMPLE: 1933691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE SAMPLE: 1933694

Parameter	Units	60241579007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	11.2	50	60.8	99	80-120	
Fluoride	mg/L	ND	25	27.1	109	80-120	
Sulfate	mg/L	110	50	172	125	80-120 M1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater
Pace Project No.: 60241710

QC Batch: 472372 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60241710005

METHOD BLANK: 1934230 Matrix: Water
Associated Lab Samples: 60241710005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<1.0	1.0	04/12/17 10:24	

LABORATORY CONTROL SAMPLE: 1934231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1934232 1934233

Parameter	Units	60241714001		1934232		1934233		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result				
Sulfate	mg/L	25.2	10	10	35.4	35.5	103	103	80-120	0	15

MATRIX SPIKE SAMPLE: 1934234

Parameter	Units	60241777001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	114	50	165	104	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-6-041017 **Lab ID: 60241710001** Collected: 04/10/17 10:13 Received: 04/11/17 07:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.439 ± 0.457 (0.680) C:NA T:95%	pCi/L	04/25/17 21:25	13982-63-3	
Radium-228	EPA 904.0	2.20 ± 0.619 (0.677) C:80% T:81%	pCi/L	04/29/17 13:26	15262-20-1	
Total Radium	Total Radium Calculation	2.64 ± 1.08 (1.36)	pCi/L	05/02/17 17:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-4-041017 **Lab ID: 60241710002** Collected: 04/10/17 11:30 Received: 04/11/17 07:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.221 ± 0.337 (0.199) C:NA T:95%	pCi/L	04/25/17 21:25	13982-63-3	
Radium-228	EPA 904.0	1.11 ± 0.407 (0.574) C:84% T:85%	pCi/L	04/29/17 13:26	15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.744 (0.773)	pCi/L	05/02/17 17:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-3-041017 **Lab ID: 60241710003** Collected: 04/10/17 13:31 Received: 04/11/17 07:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.207 ± 0.316 (0.829) C:NA T:101%	pCi/L	04/25/17 21:49	13982-63-3	
Radium-228	EPA 904.0	2.13 ± 0.592 (0.623) C:83% T:80%	pCi/L	04/29/17 13:26	15262-20-1	
Total Radium	Total Radium Calculation	2.13 ± 0.908 (1.45)	pCi/L	05/02/17 17:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: BAA-2-041017 **Lab ID: 60241710004** Collected: 04/10/17 14:47 Received: 04/11/17 07:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.475 ± 0.583 (0.951) C:NA T:92%	pCi/L	04/25/17 21:42	13982-63-3	
Radium-228	EPA 904.0	1.37 ± 0.465 (0.632) C:79% T:89%	pCi/L	04/29/17 13:26	15262-20-1	
Total Radium	Total Radium Calculation	1.85 ± 1.05 (1.58)	pCi/L	05/02/17 17:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Sample: DUP-041017 **Lab ID: 60241710005** Collected: 04/10/17 07:00 Received: 04/11/17 07:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.443 ± 0.544 (0.888) C:NA T:92%	pCi/L	04/25/17 21:42	13982-63-3	
Radium-228	EPA 904.0	2.56 ± 0.689 (0.713) C:83% T:81%	pCi/L	04/29/17 13:59	15262-20-1	
Total Radium	Total Radium Calculation	3.00 ± 1.23 (1.60)	pCi/L	05/02/17 17:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 256398 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1263033 Matrix: Water

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.171 ± 0.305 (0.666) C:86% T:87%	pCi/L	04/29/17 13:26	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60241710

QC Batch: 255927 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

METHOD BLANK: 1260381 Matrix: Water

Associated Lab Samples: 60241710001, 60241710002, 60241710003, 60241710004, 60241710005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.380 (0.774) C:NA T:86%	pCi/L	04/25/17 21:08	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR Groundwater

Pace Project No.: 60241710

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H3 Sample was received or analysis requested beyond the recognized method holding time.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60241710001	BAA-6-041017	EPA 200.7	473694	EPA 200.7	473746
60241710002	BAA-4-041017	EPA 200.7	473694	EPA 200.7	473746
60241710003	BAA-3-041017	EPA 200.7	473694	EPA 200.7	473746
60241710004	BAA-2-041017	EPA 200.7	473694	EPA 200.7	473746
60241710005	DUP-041017	EPA 200.7	473694	EPA 200.7	473746
60241710001	BAA-6-041017	EPA 200.8	473696	EPA 200.8	473747
60241710002	BAA-4-041017	EPA 200.8	473696	EPA 200.8	473747
60241710003	BAA-3-041017	EPA 200.8	473696	EPA 200.8	473747
60241710004	BAA-2-041017	EPA 200.8	473696	EPA 200.8	473747
60241710005	DUP-041017	EPA 200.8	473696	EPA 200.8	473747
60241710001	BAA-6-041017	EPA 245.1	472511	EPA 245.1	472570
60241710002	BAA-4-041017	EPA 245.1	472511	EPA 245.1	472570
60241710003	BAA-3-041017	EPA 245.1	472511	EPA 245.1	472570
60241710004	BAA-2-041017	EPA 245.1	472511	EPA 245.1	472570
60241710005	DUP-041017	EPA 245.1	472511	EPA 245.1	472570
60241710001	BAA-6-041017	EPA 903.1	255927		
60241710002	BAA-4-041017	EPA 903.1	255927		
60241710003	BAA-3-041017	EPA 903.1	255927		
60241710004	BAA-2-041017	EPA 903.1	255927		
60241710005	DUP-041017	EPA 903.1	255927		
60241710001	BAA-6-041017	EPA 904.0	256398		
60241710002	BAA-4-041017	EPA 904.0	256398		
60241710003	BAA-3-041017	EPA 904.0	256398		
60241710004	BAA-2-041017	EPA 904.0	256398		
60241710005	DUP-041017	EPA 904.0	256398		
60241710001	BAA-6-041017	Total Radium Calculation	257216		
60241710002	BAA-4-041017	Total Radium Calculation	257216		
60241710003	BAA-3-041017	Total Radium Calculation	257216		
60241710004	BAA-2-041017	Total Radium Calculation	257216		
60241710005	DUP-041017	Total Radium Calculation	257216		
60241710001	BAA-6-041017	SM 2540C	472660		
60241710002	BAA-4-041017	SM 2540C	472660		
60241710003	BAA-3-041017	SM 2540C	472660		
60241710004	BAA-2-041017	SM 2540C	472660		
60241710005	DUP-041017	SM 2540C	472660		
60241710001	BAA-6-041017	SM 4500-H+B	472271		
60241710002	BAA-4-041017	SM 4500-H+B	472271		
60241710003	BAA-3-041017	SM 4500-H+B	472271		
60241710004	BAA-2-041017	SM 4500-H+B	472271		
60241710005	DUP-041017	SM 4500-H+B	472271		
60241710001	BAA-6-041017	EPA 300.0	472240		
60241710002	BAA-4-041017	EPA 300.0	472240		
60241710003	BAA-3-041017	EPA 300.0	472240		
60241710004	BAA-2-041017	EPA 300.0	472240		
60241710005	DUP-041017	EPA 300.0	472240		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR Groundwater

Pace Project No.: 60241710

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60241710005	DUP-041017	EPA 300.0	472372		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60241710
Barcode
60241710

Client Name: Westar

Courier: FedEx [] UPS [] VIA [x] Clay [] PEX [] ECI [] Pace [] Xroads [] Client [] Other []

Tracking #: Pace Shipping Label Used? Yes [] No [x]

Custody Seal on Cooler/Box Present: Yes [x] No [] Seals intact: Yes [x] No []

Packing Material: Bubble Wrap [] Bubble Bags [] Foam [] None [x] Other []

Thermometer Used: T/266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 0.1 Corr. Factor CF +1.5 CF +0.9 Corrected 1.6

Date and initials of person examining contents: JW 4/11/17

Temperature should be above freezing to 6°C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and handwritten notes. Rows include Chain of Custody present, Samples arrived within holding time, Short Hold Time analyses (<72hr), Rush Turn Around Time requested, Sufficient volume, Correct containers used, Pace containers used, Containers intact, Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?, Filtered volume received for dissolved tests?, Sample labels match COC: Date / time / ID / analyses, Samples contain multiple phases? Matrix: WT, Containers requiring pH preservation in compliance?, Cyanide water sample checks: [x] N/A, Lead acetate strip turns dark? (Record only), Potassium iodide test strip turns blue/purple? (Preserve), Trip Blank present, Headspace in VOA vials (>6mm), Samples from USDA Regulated Area: State, Additional labels attached to 5035A / TX1005 vials in the field?

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: [Signature]

Date: 4/11/17

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: WESTAR ENERGY		Report To: Brandon Griffin		Attention: Jared Morrison	
Address: 818 Kansas Ave Topeka, KS 66612		Copy To: Jared Morrison, Heath Horny		Company Name: WESTAR ENERGY	
Email To: brandon.l.griffin@westarenergy.com		Purchase Order No.:		Address: SEE SECTION A	
Phone: (785) 575-8135 Fax:		Project Name: JEC CCR Groundwater		Pace Quote Reference:	
Requested Due Date/TAT: 7 DAY		Project Number:		Pace Project Manager: Heather Wilson, 913-563-1407	
				Pace Profile #: 9657, 1	

REGULATORY AGENCY		
<input checked="" type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input type="checkbox"/> OTHER
Site Location STATE: KS		

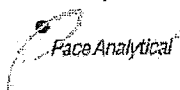
ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	COLLECTED	# OF CONTAINERS	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.										
					COMPOSITE START		COMPOSITE END/GRAB		SAMPLE TEMP AT COLLECTION	↓ Analysis Test ↓	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃			Methanol	Other	200.7 Total Metals*	200.8 Total Metals**	245.1 Total Mercury	300.0 Cl, F, SO ₄	4500 H+B	2540C TDS	Radium 226	Radium 228
					DATE	TIME	DATE	TIME																				
1	BAA-6-041017	WTG	4/10 1013	4 1 3																								2(BPIN) ¹⁵ BQ2W ¹⁵ BQ2W 501
2	BAA-4-041017	WTG	4/10 1130	4 1 3																								202
3	BAA-3-041017	WTG	4/10 1331	4 1 3																								203
4	BAA-2-041017	WTG	4/10 1447	4 1 3																								204
5																												
6																												
7																												
8																												
9																												
10	DUP-041017	WTG	4/10 0700	4 1 3																								2(BPIN) ¹⁵ BQ2W ¹⁵ BQ2W 505
11																												
12																												

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS		
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li		BGG / Westar		4/10/17		1700		[Signature] / P&S		4/11/17		0715		1.6 4 4 4		
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl																

SAMPLER NAME AND SIGNATURE				Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Brandon Griffin							
SIGNATURE of SAMPLER: [Signature]							
DATE Signed (MM/DD/YY): 04/10/17							

Sample Condition Upon Receipt Pittsburgh

30215864



Client Name: Pace Kansas

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 72856591 4596

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KEH 4/12/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15. <u>pH < 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>KEH</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:		/		17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>KEH</u> Date: <u>4/12/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-7
May 2017 Sampling Event
Laboratory Analytical Report

June 19, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60245290

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on May 27, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60245290001	BAA-6-052617	Water	05/26/17 07:27	05/27/17 08:50
60245290002	BAA-2-052617	Water	05/26/17 09:30	05/27/17 08:50
60245290003	BAA-4-052617	Water	05/26/17 10:54	05/27/17 08:50
60245290004	BAA-3-052617	Water	05/26/17 12:04	05/27/17 08:50
60245290005	DUP-052617	Water	05/26/17 06:00	05/27/17 08:50

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60245290001	BAA-6-052617	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245290002	BAA-2-052617	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245290003	BAA-4-052617	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245290004	BAA-3-052617	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
60245290005	DUP-052617	EPA 200.7	TDS	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 479127

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60245129001,60245129002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1962385)
 - Calcium
- MS (Lab ID: 1962387)
 - Boron
 - Calcium
- MSD (Lab ID: 1962386)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-052617 (Lab ID: 60245290002)
- BAA-3-052617 (Lab ID: 60245290004)
- BAA-4-052617 (Lab ID: 60245290003)
- BAA-6-052617 (Lab ID: 60245290001)
- DUP-052617 (Lab ID: 60245290005)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: June 19, 2017

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-6-052617	Lab ID: 60245290001	Collected: 05/26/17 07:27	Received: 05/27/17 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Total Recoverable	0.018	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:00	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/01/17 09:44	06/07/17 18:00	7440-41-7	
Boron, Total Recoverable	2.8	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:00	7440-42-8	
Calcium, Total Recoverable	518	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:00	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:00	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:00	7439-92-1	
Lithium	0.059	mg/L	0.010	1	06/01/17 09:44	06/07/17 18:00	7439-93-2	
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7440-36-0	
Arsenic, Total Recoverable	0.0012	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 18:23	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7440-48-4	
Molybdenum, Total Recoverable	0.0036	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:23	7440-28-0	
245.1 Mercury								
Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	<0.00020	mg/L	0.00020	1	06/09/17 16:43	06/12/17 11:43	7439-97-6	
2540C Total Dissolved Solids								
Analytical Method: SM 2540C								
Total Dissolved Solids	3280	mg/L	5.0	1		05/31/17 09:38		
4500H+ pH, Electrometric								
Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	6.9	Std. Units	0.10	1		06/02/17 13:34		H6
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0								
Chloride	204	mg/L	20.0	20		05/31/17 16:42	16887-00-6	
Fluoride	0.76	mg/L	0.20	1		05/31/17 16:27	16984-48-8	
Sulfate	1830	mg/L	200	200		05/31/17 16:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-2-052617		Lab ID: 60245290002		Collected: 05/26/17 09:30		Received: 05/27/17 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.042	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:02	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/01/17 09:44	06/07/17 18:02	7440-41-7		
Boron, Total Recoverable	1.2	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:02	7440-42-8		
Calcium, Total Recoverable	195	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:02	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:02	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:02	7439-92-1		
Lithium	0.012	mg/L	0.010	1	06/01/17 09:44	06/07/17 18:02	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7440-36-0		
Arsenic, Total Recoverable	0.0053	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 18:29	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7440-48-4		
Molybdenum, Total Recoverable	0.047	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:29	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	06/09/17 16:43	06/12/17 11:44	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1380	mg/L	5.0	1		05/31/17 09:38			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.4	Std. Units	0.10	1		06/02/17 13:34		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	144	mg/L	10.0	10		05/31/17 18:11	16887-00-6		
Fluoride	0.49	mg/L	0.20	1		05/31/17 17:56	16984-48-8		
Sulfate	769	mg/L	50.0	50		05/31/17 17:11	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-4-052617		Lab ID: 60245290003	Collected: 05/26/17 10:54	Received: 05/27/17 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.027	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:05	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/01/17 09:44	06/07/17 18:05	7440-41-7	
Boron, Total Recoverable	1.0	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:05	7440-42-8	
Calcium, Total Recoverable	373	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:05	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:05	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:05	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	06/01/17 09:44	06/07/17 18:05	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7440-36-0	
Arsenic, Total Recoverable	0.0073	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 18:36	7440-43-9	
Cobalt, Total Recoverable	0.017	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7440-48-4	
Molybdenum, Total Recoverable	0.11	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:36	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	06/09/17 16:43	06/12/17 11:46	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3740	mg/L	5.0	1		05/31/17 09:38		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		06/02/17 13:34		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	162	mg/L	20.0	20		05/31/17 18:41	16887-00-6	
Fluoride	0.32	mg/L	0.20	1		05/31/17 18:26	16984-48-8	
Sulfate	2330	mg/L	200	200		05/31/17 18:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-3-052617		Lab ID: 60245290004	Collected: 05/26/17 12:04	Received: 05/27/17 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.0076	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:07	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/01/17 09:44	06/07/17 18:07	7440-41-7	
Boron, Total Recoverable	2.3	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:07	7440-42-8	
Calcium, Total Recoverable	522	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:07	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:07	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:07	7439-92-1	
Lithium	0.072	mg/L	0.010	1	06/01/17 09:44	06/07/17 18:07	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 18:42	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7440-48-4	
Molybdenum, Total Recoverable	0.0015	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:42	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	06/09/17 16:43	06/12/17 11:47	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3260	mg/L	5.0	1		05/31/17 09:39		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2	Std. Units	0.10	1		06/02/17 13:34		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	155	mg/L	20.0	20		05/31/17 19:25	16887-00-6	
Fluoride	1.0	mg/L	0.20	1		05/31/17 19:11	16984-48-8	
Sulfate	2130	mg/L	200	200		05/31/17 19:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: DUP-052617		Lab ID: 60245290005	Collected: 05/26/17 06:00	Received: 05/27/17 08:50	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.041	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:10	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/01/17 09:44	06/07/17 18:10	7440-41-7	
Boron, Total Recoverable	1.3	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:10	7440-42-8	
Calcium, Total Recoverable	207	mg/L	0.10	1	06/01/17 09:44	06/07/17 18:10	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:10	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/01/17 09:44	06/07/17 18:10	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	06/01/17 09:44	06/07/17 18:10	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7440-36-0	
Arsenic, Total Recoverable	0.0056	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	05/30/17 16:33	06/15/17 18:49	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7440-48-4	
Molybdenum, Total Recoverable	0.050	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	05/30/17 16:33	06/15/17 18:49	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	06/09/17 16:43	06/12/17 11:52	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1440	mg/L	5.0	1		05/31/17 09:39		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.5	Std. Units	0.10	1		06/02/17 13:34		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	144	mg/L	20.0	20		05/31/17 19:55	16887-00-6	
Fluoride	0.47	mg/L	0.20	1		05/31/17 20:55	16984-48-8	
Sulfate	776	mg/L	100	100		06/01/17 16:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 479800 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

METHOD BLANK: 1965095 Matrix: Water
 Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	06/12/17 11:26	

LABORATORY CONTROL SAMPLE: 1965096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0053	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1965097 1965098

Parameter	Units	60245491002		MS		MSD		% Rec		Limits		Max		Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	RPD	RPD			
Mercury	mg/L	ND	.005	.005	.005	0.0048	0.0050	96	100	70-130	3	20		

MATRIX SPIKE SAMPLE: 1965099

Parameter	Units	60245292001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.00020	.005	0.0049	97	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 479127 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

METHOD BLANK: 1962383 Matrix: Water
Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	06/07/17 17:40	
Beryllium	mg/L	<0.0010	0.0010	06/07/17 17:40	
Boron	mg/L	<0.10	0.10	06/07/17 17:40	
Calcium	mg/L	<0.10	0.10	06/07/17 17:40	
Chromium	mg/L	<0.0050	0.0050	06/07/17 17:40	
Lead	mg/L	<0.0050	0.0050	06/07/17 17:40	
Lithium	mg/L	<0.010	0.010	06/07/17 17:40	

LABORATORY CONTROL SAMPLE: 1962384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	100	85-115	
Beryllium	mg/L	1	1.0	100	85-115	
Boron	mg/L	1	0.99	99	85-115	
Calcium	mg/L	10	10	100	85-115	
Chromium	mg/L	1	1.0	100	85-115	
Lead	mg/L	1	1.0	100	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1962385 1962386

Parameter	Units	60245129001		60245129002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Barium	mg/L	0.072	1	1	1.0	1.0	95	95	70-130	0	20		
Beryllium	mg/L	<0.0010	1	1	0.96	0.97	96	97	70-130	1	20		
Boron	mg/L	0.70	1	1	1.7	1.6	95	94	70-130	1	20		
Calcium	mg/L	152	10	10	158	158	62	58	70-130	0	20	M1	
Chromium	mg/L	<0.0050	1	1	0.94	0.95	94	95	70-130	1	20		
Lead	mg/L	<0.0050	1	1	0.91	0.91	91	91	70-130	0	20		
Lithium	mg/L	0.023	1	1	1.0	1.0	99	99	70-130	1	20		

MATRIX SPIKE SAMPLE: 1962387

Parameter	Units	60245129002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.28	1	1.0	71	70-130	
Beryllium	mg/L	<0.0010	1	0.98	98	70-130	
Boron	mg/L	0.26	1	2.3	205	70-130	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

MATRIX SPIKE SAMPLE:		1962387					
Parameter	Units	60245129002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	177	10	224	471	70-130	M1
Chromium	mg/L	<0.0050	1	1.0	102	70-130	
Lead	mg/L	<0.0050	1	0.96	96	70-130	
Lithium	mg/L	<0.010	1	0.98	98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 478816 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

METHOD BLANK: 1961478 Matrix: Water
 Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	05/31/17 12:50	
Arsenic	mg/L	<0.0010	0.0010	05/31/17 12:50	
Cadmium	mg/L	<0.00050	0.00050	05/31/17 12:50	
Cobalt	mg/L	<0.0010	0.0010	05/31/17 12:50	
Molybdenum	mg/L	<0.0010	0.0010	05/31/17 12:50	
Selenium	mg/L	<0.0010	0.0010	05/31/17 12:50	
Thallium	mg/L	<0.0010	0.0010	05/31/17 12:50	

LABORATORY CONTROL SAMPLE: 1961479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	98	85-115	
Arsenic	mg/L	.04	0.039	98	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.039	98	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.038	95	85-115	
Thallium	mg/L	.04	0.037	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1961480 1961481

Parameter	Units	60245311001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	mg/L	ND	.04	.04	0.039	0.039	95	95	70-130	0	20		
Arsenic	mg/L	40.0 ug/L	.04	.04	0.078	0.080	94	100	70-130	3	20		
Cadmium	mg/L	ND	.04	.04	0.036	0.037	90	91	70-130	1	20		
Cobalt	mg/L	ND	.04	.04	0.042	0.042	92	94	70-130	2	20		
Molybdenum	mg/L	ND	.04	.04	0.043	0.043	106	105	70-130	1	20		
Selenium	mg/L	ND	.04	.04	0.035	0.035	87	87	70-130	1	20		
Thallium	mg/L	ND	.04	.04	0.038	0.038	94	94	70-130	0	20		

MATRIX SPIKE SAMPLE: 1961482

Parameter	Units	60245129001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0010	.04	0.038	96	70-130	
Arsenic	mg/L	0.0013	.04	0.037	89	70-130	
Cadmium	mg/L	<0.00050	.04	0.035	88	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

MATRIX SPIKE SAMPLE:		1961482					
Parameter	Units	60245129001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0010	.04	0.037	89	70-130	
Molybdenum	mg/L	0.0089	.04	0.051	104	70-130	
Selenium	mg/L	<0.0010	.04	0.033	83	70-130	
Thallium	mg/L	<0.0010	.04	0.034	85	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 478945

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

METHOD BLANK: 1961877

Matrix: Water

Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	05/31/17 09:32	

LABORATORY CONTROL SAMPLE: 1961878

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	937	94	80-120	

SAMPLE DUPLICATE: 1961879

Parameter	Units	60245271001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	479	484	1	10	

SAMPLE DUPLICATE: 1961880

Parameter	Units	60245290003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3740	3750	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 479276 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

SAMPLE DUPLICATE: 1962983

Parameter	Units	60245416001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.0	8.0	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60245290

QC Batch: 478968 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

METHOD BLANK: 1961900 Matrix: Water
Associated Lab Samples: 60245290001, 60245290002, 60245290003, 60245290004, 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	05/31/17 09:01	
Fluoride	mg/L	<0.20	0.20	05/31/17 09:01	
Sulfate	mg/L	<1.0	1.0	05/31/17 09:01	

LABORATORY CONTROL SAMPLE: 1961901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.2	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1961902 1961903

Parameter	Units	60245259005		1961902		1961903		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	30.3	25	25	56.4	56.3	104	104	80-120	0	15
Fluoride	mg/L	ND	12.5	12.5	13.8	13.7	107	106	80-120	0	15
Sulfate	mg/L	33.1	25	25	58.6	58.3	102	101	80-120	1	15

MATRIX SPIKE SAMPLE: 1961904

Parameter	Units	60245137009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5.4	5	10.7	104	80-120	
Fluoride	mg/L	0.21	2.5	2.9	106	80-120	
Sulfate	mg/L	12.9	5	18.2	106	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch: 479186	Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0	Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60245290005	

METHOD BLANK: 1962661 Matrix: Water

Associated Lab Samples: 60245290005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<1.0	1.0	06/01/17 09:12	

LABORATORY CONTROL SAMPLE: 1962662

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.2	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1962663 1962664

Parameter	Units	60245358001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Sulfate	mg/L	ND	50	50	50	53.6	53.8	107	108	80-120	0	15			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-6-052617 **Lab ID: 60245290001** Collected: 05/26/17 07:27 Received: 05/27/17 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.437 ± 0.444 (0.672) C:NA T:93%	pCi/L	06/12/17 21:48	13982-63-3	
Radium-228	EPA 904.0	2.68 ± 0.691 (0.624) C:75% T:84%	pCi/L	06/14/17 14:29	15262-20-1	
Total Radium	Total Radium Calculation	3.12 ± 1.14 (1.30)	pCi/L	06/15/17 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-2-052617 **Lab ID: 60245290002** Collected: 05/26/17 09:30 Received: 05/27/17 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.806 ± 0.538 (0.668) C:NA T:93%	pCi/L	06/12/17 21:48	13982-63-3	
Radium-228	EPA 904.0	1.60 ± 0.512 (0.656) C:75% T:87%	pCi/L	06/14/17 14:29	15262-20-1	
Total Radium	Total Radium Calculation	2.41 ± 1.05 (1.32)	pCi/L	06/15/17 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-4-052617 **Lab ID: 60245290003** Collected: 05/26/17 10:54 Received: 05/27/17 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.410 ± 0.383 (0.544) C:NA T:93%	pCi/L	06/12/17 21:48	13982-63-3	
Radium-228	EPA 904.0	0.755 ± 0.437 (0.807) C:74% T:82%	pCi/L	06/14/17 14:30	15262-20-1	
Total Radium	Total Radium Calculation	1.17 ± 0.820 (1.35)	pCi/L	06/15/17 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: BAA-3-052617 **Lab ID: 60245290004** Collected: 05/26/17 12:04 Received: 05/27/17 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.540 ± 0.340 (0.146) C:NA T:103%	pCi/L	06/12/17 22:03	13982-63-3	
Radium-228	EPA 904.0	1.06 ± 0.452 (0.744) C:76% T:89%	pCi/L	06/14/17 14:30	15262-20-1	
Total Radium	Total Radium Calculation	1.60 ± 0.792 (0.890)	pCi/L	06/15/17 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Sample: DUP-052617 **Lab ID: 60245290005** Collected: 05/26/17 06:00 Received: 05/27/17 08:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.729 ± 0.439 (0.180) C:NA T:90%	pCi/L	06/12/17 22:03	13982-63-3	
Radium-228	EPA 904.0	0.494 ± 0.376 (0.740) C:75% T:93%	pCi/L	06/14/17 14:30	15262-20-1	
Total Radium	Total Radium Calculation	1.22 ± 0.815 (0.920)	pCi/L	06/15/17 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch:	260596	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	60245290001, 60245290002, 60245290003, 60245290004, 60245290005		

METHOD BLANK:	1283376	Matrix:	Water
Associated Lab Samples:	60245290001, 60245290002, 60245290003, 60245290004, 60245290005		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0588 ± 0.383 (0.771) C:NA T:96%	pCi/L	06/12/17 21:18	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

QC Batch:	260868	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	60245290001, 60245290002, 60245290003, 60245290004, 60245290005		

METHOD BLANK:	1284605	Matrix:	Water
Associated Lab Samples:	60245290001, 60245290002, 60245290003, 60245290004, 60245290005		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.409 ± 0.296 (0.562) C:78% T:83%	pCi/L	06/14/17 10:50	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60245290001	BAA-6-052617	EPA 200.7	479127	EPA 200.7	479269
60245290002	BAA-2-052617	EPA 200.7	479127	EPA 200.7	479269
60245290003	BAA-4-052617	EPA 200.7	479127	EPA 200.7	479269
60245290004	BAA-3-052617	EPA 200.7	479127	EPA 200.7	479269
60245290005	DUP-052617	EPA 200.7	479127	EPA 200.7	479269
60245290001	BAA-6-052617	EPA 200.8	478816	EPA 200.8	478960
60245290002	BAA-2-052617	EPA 200.8	478816	EPA 200.8	478960
60245290003	BAA-4-052617	EPA 200.8	478816	EPA 200.8	478960
60245290004	BAA-3-052617	EPA 200.8	478816	EPA 200.8	478960
60245290005	DUP-052617	EPA 200.8	478816	EPA 200.8	478960
60245290001	BAA-6-052617	EPA 245.1	479800	EPA 245.1	480611
60245290002	BAA-2-052617	EPA 245.1	479800	EPA 245.1	480611
60245290003	BAA-4-052617	EPA 245.1	479800	EPA 245.1	480611
60245290004	BAA-3-052617	EPA 245.1	479800	EPA 245.1	480611
60245290005	DUP-052617	EPA 245.1	479800	EPA 245.1	480611
60245290001	BAA-6-052617	EPA 903.1	260596		
60245290002	BAA-2-052617	EPA 903.1	260596		
60245290003	BAA-4-052617	EPA 903.1	260596		
60245290004	BAA-3-052617	EPA 903.1	260596		
60245290005	DUP-052617	EPA 903.1	260596		
60245290001	BAA-6-052617	EPA 904.0	260868		
60245290002	BAA-2-052617	EPA 904.0	260868		
60245290003	BAA-4-052617	EPA 904.0	260868		
60245290004	BAA-3-052617	EPA 904.0	260868		
60245290005	DUP-052617	EPA 904.0	260868		
60245290001	BAA-6-052617	Total Radium Calculation	261901		
60245290002	BAA-2-052617	Total Radium Calculation	261901		
60245290003	BAA-4-052617	Total Radium Calculation	261901		
60245290004	BAA-3-052617	Total Radium Calculation	261901		
60245290005	DUP-052617	Total Radium Calculation	261901		
60245290001	BAA-6-052617	SM 2540C	478945		
60245290002	BAA-2-052617	SM 2540C	478945		
60245290003	BAA-4-052617	SM 2540C	478945		
60245290004	BAA-3-052617	SM 2540C	478945		
60245290005	DUP-052617	SM 2540C	478945		
60245290001	BAA-6-052617	SM 4500-H+B	479276		
60245290002	BAA-2-052617	SM 4500-H+B	479276		
60245290003	BAA-4-052617	SM 4500-H+B	479276		
60245290004	BAA-3-052617	SM 4500-H+B	479276		
60245290005	DUP-052617	SM 4500-H+B	479276		
60245290001	BAA-6-052617	EPA 300.0	478968		
60245290002	BAA-2-052617	EPA 300.0	478968		
60245290003	BAA-4-052617	EPA 300.0	478968		
60245290004	BAA-3-052617	EPA 300.0	478968		
60245290005	DUP-052617	EPA 300.0	478968		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60245290

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60245290005	DUP-052617	EPA 300.0	479186		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60245290



60245290

Client Name: Westar

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

BR 5/30/17

Cooler Temperature (°C): As-read 3.0 Corr. Factor CF +2.9 CF +0.3 Corrected 3.2

Date and initials of person examining contents:

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>PM</u>
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>2 BAA-2-052617 Samples on CC</u>
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>Containers label for sample</u>
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>collected @ 12:04 says ID is</u>
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>'BAA-3-052617'</u>
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Brandon Griffin Date/Time: 5/30/17

Comments/ Resolution: What sample ID should be used for the sample collected @ 12:04? AMW 5/30/17

Per Brandon - sample ID should be BAA-3-052617 AMW 5/30/17

Project Manager Review: AMW Date: 5/30/17

Chain of Custody



Workorder: 60245290

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 5/27/2017

Results Requested By: 6/21/2017

Report To		Subcontract To						Requested Analysis																
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600						<div style="text-align: center;"> <p>WO#: 30220261</p> <p>30220261</p> </div>																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					Radium-228	Radium-226 & Total Radium	LAB USE ONLY											
						HNO3																		
1	BAA-6-052617	PS	5/26/2017 07:27	60245290001	Water	2					X	X												001
2	BAA-2-052617	PS	5/26/2017 09:30	60245290002	Water	2					X	X												002
3	BAA-4-052617	PS	5/26/2017 10:54	60245290003	Water	2					X	X												003
4	BAA-3-052617	PS	5/26/2017 12:04	60245290004	Water	2					X	X												004
5	DUP-052617	PS	5/26/2017 06:00	60245290005	Water	2					X	X												005
Transfers												Comments												
Released By	Date/Time	Received By	Date/Time																					
<i>[Signature]</i>	5/30/17 1700	<i>[Signature]</i>	5/31/17 0955																					
Cooler Temperature on Receipt NA °C		Custody Seal (Y) or N		Received on Ice Y or (N)		Samples Intact (Y) or N																		

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh



30220261

KEH

Client Name: Pace Kansas

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7285 6592 8386

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KEH 5/31/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>N/A</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15. <u>PH < 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>KEH</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>KEH</u> Date: <u>5/31/17</u>

Client Notification/ Resolution: Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-8
June 2017 Sampling Event
Laboratory Analytical Report

July 13, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR Groundwater
Pace Project No.: 60246928

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on June 20, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60246928001	MW-FAA-6-061717	Water	06/17/17 10:30	06/20/17 15:25
60246928002	MW-BAA-7-061717	Water	06/17/17 14:00	06/20/17 15:25

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60246928001	MW-FAA-6-061717	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	LDF	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	RAD	3	PASI-K
		60246928002	MW-BAA-7-061717	EPA 200.7	TDS
EPA 200.8	JGP			7	PASI-K
EPA 245.1	JRS			1	PASI-K
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	LDF			1	PASI-K
SM 4500-H+B	JSS			1	PASI-K
EPA 300.0	RAD			3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- MW-BAA-7-061717 (Lab ID: 60246928002)
- MW-FAA-6-061717 (Lab ID: 60246928001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: July 13, 2017

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Sample: MW-FAA-6-061717		Lab ID: 60246928001	Collected: 06/17/17 10:30	Received: 06/20/17 15:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.065	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:05	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:05	7440-41-7	
Boron, Total Recoverable	2.2	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:05	7440-42-8	
Calcium, Total Recoverable	145	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:05	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:05	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:05	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:05	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7440-36-0	
Arsenic, Total Recoverable	0.0049	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	06/30/17 11:00	07/03/17 11:47	7440-43-9	
Cobalt, Total Recoverable	0.0018	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7440-48-4	
Molybdenum, Total Recoverable	0.31	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/03/17 11:47	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	07/07/17 14:00	07/10/17 09:59	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	2020	mg/L	5.0	1		06/21/17 11:58		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		06/22/17 15:47		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	65.7	mg/L	10.0	10		06/22/17 16:24	16887-00-6	
Fluoride	0.81	mg/L	0.20	1		06/21/17 22:21	16984-48-8	
Sulfate	1120	mg/L	100	100		06/21/17 22:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Sample: MW-BAA-7-061717		Lab ID: 60246928002		Collected: 06/17/17 14:00		Received: 06/20/17 15:25		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.051	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:08	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/10/17 18:08	7440-41-7		
Boron, Total Recoverable	0.79	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:08	7440-42-8		
Calcium, Total Recoverable	260	mg/L	0.10	1	06/30/17 11:00	07/10/17 18:08	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:08	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	06/30/17 11:00	07/10/17 18:08	7439-92-1		
Lithium	0.037	mg/L	0.010	1	06/30/17 11:00	07/10/17 18:08	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	06/30/17 11:00	07/12/17 12:14	7440-43-9		
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7440-48-4		
Molybdenum, Total Recoverable	0.018	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	06/30/17 11:00	07/12/17 12:14	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	07/07/17 14:00	07/10/17 10:06	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1760	mg/L	5.0	1		06/21/17 11:58			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.1	Std. Units	0.10	1		06/22/17 15:49		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	98.5	mg/L	10.0	10		06/22/17 16:39	16887-00-6		
Fluoride	0.64	mg/L	0.20	1		06/21/17 23:06	16984-48-8		
Sulfate	859	mg/L	100	100		06/21/17 23:20	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 484318

Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1

Analysis Description: 245.1 Mercury

Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1983721

Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	07/10/17 09:55	

LABORATORY CONTROL SAMPLE: 1983722

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0051	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1983723 1983724

Parameter	Units	60246928001		1983723		1983724		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.00020	.005	.005	0.0048	0.0049	97	98	70-130	1	20

MATRIX SPIKE SAMPLE: 1983725

Parameter	Units	60247606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0049	98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater
Pace Project No.: 60246928

QC Batch: 483470 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1980483 Matrix: Water
Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	07/10/17 18:03	
Beryllium	mg/L	<0.0010	0.0010	07/10/17 18:03	
Boron	mg/L	<0.10	0.10	07/10/17 18:03	
Calcium	mg/L	<0.10	0.10	07/10/17 18:03	
Chromium	mg/L	<0.0050	0.0050	07/10/17 18:03	
Lead	mg/L	<0.0050	0.0050	07/10/17 18:03	
Lithium	mg/L	<0.010	0.010	07/10/17 18:03	

LABORATORY CONTROL SAMPLE: 1980484

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.98	98	85-115	
Beryllium	mg/L	1	1.0	100	85-115	
Boron	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	10.5	105	85-115	
Chromium	mg/L	1	1.0	102	85-115	
Lead	mg/L	1	1.0	101	85-115	
Lithium	mg/L	1	0.96	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1980485 1980486

Parameter	Units	60246928002		1980486		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	0.051	1	1	1.0	1.0	100	99	70-130	0	20
Beryllium	mg/L	<0.0010	1	1	1.0	0.99	100	99	70-130	1	20
Boron	mg/L	0.79	1	1	1.8	1.8	101	102	70-130	0	20
Calcium	mg/L	260	10	10	269	270	90	103	70-130	0	20
Chromium	mg/L	<0.0050	1	1	1.0	1.0	101	100	70-130	1	20
Lead	mg/L	<0.0050	1	1	0.98	0.97	98	97	70-130	1	20
Lithium	mg/L	0.037	1	1	1.1	1.1	103	103	70-130	0	20

MATRIX SPIKE SAMPLE: 1980487

Parameter	Units	60247365006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.12	1	1.1	100	70-130	
Beryllium	mg/L	<0.0010	1	0.98	98	70-130	
Boron	mg/L	2.0	1	3.0	102	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

MATRIX SPIKE SAMPLE:		1980487					
Parameter	Units	60247365006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	227	10	236	87	70-130	
Chromium	mg/L	<0.0050	1	0.97	97	70-130	
Lead	mg/L	<0.0050	1	0.89	88	70-130	
Lithium	mg/L	0.22	1	1.3	113	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater
Pace Project No.: 60246928

QC Batch: 483371 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1980101 Matrix: Water
Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	07/03/17 11:39	
Arsenic	mg/L	<0.0010	0.0010	07/03/17 11:39	
Cadmium	mg/L	<0.00050	0.00050	07/03/17 11:39	
Cobalt	mg/L	<0.0010	0.0010	07/03/17 11:39	
Molybdenum	mg/L	<0.0010	0.0010	07/03/17 11:39	
Selenium	mg/L	<0.0010	0.0010	07/03/17 11:39	
Thallium	mg/L	<0.0010	0.0010	07/03/17 11:39	

LABORATORY CONTROL SAMPLE: 1980102

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	97	85-115	
Arsenic	mg/L	.04	0.039	97	85-115	
Cadmium	mg/L	.04	0.038	95	85-115	
Cobalt	mg/L	.04	0.039	99	85-115	
Molybdenum	mg/L	.04	0.040	99	85-115	
Selenium	mg/L	.04	0.037	93	85-115	
Thallium	mg/L	.04	0.036	89	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1980103 1980104

Parameter	Units	60246928001		1980103		1980104		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	<0.0010	.04	.04	.04	0.037	0.037	90	91	70-130	1	20	
Arsenic	mg/L	0.0049	.04	.04	.04	0.040	0.040	88	88	70-130	0	20	
Cadmium	mg/L	<0.00050	.04	.04	.04	0.031	0.031	78	78	70-130	0	20	
Cobalt	mg/L	0.0018	.04	.04	.04	0.038	0.038	89	90	70-130	0	20	
Molybdenum	mg/L	0.31	.04	.04	.04	0.36	0.36	116	105	70-130	1	20	
Selenium	mg/L	<0.0010	.04	.04	.04	0.034	0.033	83	81	70-130	3	20	
Thallium	mg/L	<0.0010	.04	.04	.04	0.033	0.033	82	82	70-130	0	20	

MATRIX SPIKE SAMPLE: 1980105

Parameter	Units	60247365005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	<0.0050	.04	0.037	91	70-130	
Arsenic	mg/L	<0.0050	.04	0.037	86	70-130	
Cadmium	mg/L	<0.0025	.04	0.032	79	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

MATRIX SPIKE SAMPLE:		1980105					
Parameter	Units	60247365005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	<0.0050	.04	0.036	88	70-130	
Molybdenum	mg/L	0.0054	.04	0.046	101	70-130	
Selenium	mg/L	<0.0050	.04	0.030	76	70-130	
Thallium	mg/L	<0.0050	.04	0.033	80	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 481991

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1974212

Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	06/21/17 11:50	

LABORATORY CONTROL SAMPLE: 1974213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	964	96	80-120	

SAMPLE DUPLICATE: 1974214

Parameter	Units	60246884001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2070	2060	0	10	

SAMPLE DUPLICATE: 1974215

Parameter	Units	60246832003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	100	98.5	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 482225 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60246928001, 60246928002

SAMPLE DUPLICATE: 1975265

Parameter	Units	60245949001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.8	7.1	4	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 482018

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1974342

Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	06/21/17 08:21	
Sulfate	mg/L	<1.0	1.0	06/21/17 08:21	

LABORATORY CONTROL SAMPLE: 1974343

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	5	4.6	93	90-110	

MATRIX SPIKE SAMPLE: 1974346

Parameter	Units	60246965001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	62.5	63.0	101	80-120	
Sulfate	mg/L	57.1	125	177	96	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 482164 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1974902 Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	06/22/17 08:34	

LABORATORY CONTROL SAMPLE: 1974903

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1974904 1974905

Parameter	Units	60247044001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Chloride	mg/L	1750	1000	1000	2880	2880	112	113	80-120	0	15		

MATRIX SPIKE SAMPLE: 1974906

Parameter	Units	60246963002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	90.7	50	146	110	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Sample: MW-FAA-6-061717 **Lab ID: 60246928001** Collected: 06/17/17 10:30 Received: 06/20/17 15:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.246 ± 0.772 (1.43) C:NA T:93%	pCi/L	06/30/17 10:16	13982-63-3	
Radium-228	EPA 904.0	0.401 ± 0.411 (0.840) C:79% T:81%	pCi/L	07/07/17 15:51	15262-20-1	
Total Radium	Total Radium Calculation	0.647 ± 1.18 (2.27)	pCi/L	07/13/17 11:40	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Sample: MW-BAA-7-061717 **Lab ID: 60246928002** Collected: 06/17/17 14:00 Received: 06/20/17 15:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.301 ± 0.711 (1.32) C:NA T:84%	pCi/L	06/30/17 10:16	13982-63-3	
Radium-228	EPA 904.0	1.00 ± 0.518 (0.900) C:79% T:85%	pCi/L	07/07/17 15:51	15262-20-1	
Total Radium	Total Radium Calculation	1.30 ± 1.23 (2.22)	pCi/L	07/13/17 11:40	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 262895

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1294659

Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.162 ± 0.371 (0.598) C:NA T:92%	pCi/L	06/30/17 10:16	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60246928

QC Batch: 262906 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60246928001, 60246928002

METHOD BLANK: 1294682 Matrix: Water

Associated Lab Samples: 60246928001, 60246928002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.444 ± 0.415 (0.840) C:79% T:86%	pCi/L	07/07/17 15:51	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR Groundwater

Pace Project No.: 60246928

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR Groundwater

Pace Project No.: 60246928

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60246928001	MW-FAA-6-061717	EPA 200.7	483470	EPA 200.7	483561
60246928002	MW-BAA-7-061717	EPA 200.7	483470	EPA 200.7	483561
60246928001	MW-FAA-6-061717	EPA 200.8	483371	EPA 200.8	483560
60246928002	MW-BAA-7-061717	EPA 200.8	483371	EPA 200.8	483560
60246928001	MW-FAA-6-061717	EPA 245.1	484318	EPA 245.1	484436
60246928002	MW-BAA-7-061717	EPA 245.1	484318	EPA 245.1	484436
60246928001	MW-FAA-6-061717	EPA 903.1	262895		
60246928002	MW-BAA-7-061717	EPA 903.1	262895		
60246928001	MW-FAA-6-061717	EPA 904.0	262906		
60246928002	MW-BAA-7-061717	EPA 904.0	262906		
60246928001	MW-FAA-6-061717	Total Radium Calculation	264856		
60246928002	MW-BAA-7-061717	Total Radium Calculation	264856		
60246928001	MW-FAA-6-061717	SM 2540C	481991		
60246928002	MW-BAA-7-061717	SM 2540C	481991		
60246928001	MW-FAA-6-061717	SM 4500-H+B	482225		
60246928002	MW-BAA-7-061717	SM 4500-H+B	482225		
60246928001	MW-FAA-6-061717	EPA 300.0	482018		
60246928001	MW-FAA-6-061717	EPA 300.0	482164		
60246928002	MW-BAA-7-061717	EPA 300.0	482018		
60246928002	MW-BAA-7-061717	EPA 300.0	482164		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60246928



60246928

Client Name: Westar

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 2.6 Corr. Factor CF +2.9 / CF +0.2 Corrected 2.8

Date and initials of person examining contents: 1/26/2017

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>pH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks: <input checked="" type="checkbox"/> N/A		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature]

Date: 1/26/17


Chain of Custody



Workorder: 60246928

Workorder Name: JEC CCR Groundwater

Owner Received Date: 6/20/2017 Results Requested By: 7/13/2017

Report To		Subcontract To		Requested Analysis											
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600		<div style="border: 1px solid black; padding: 5px; text-align: center;"> WO#: 30222311  30222311 </div>											
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3	Preserved Containers				Radium-228	Radium-226 & Total Radium	LAB USE ONLY		
1	MW-FAA-6-061717	PS	6/17/2017 10:30	60246928001	Water	2						X	X		
2	MW-8AA-7-061717	PS	6/17/2017 14:00	60246928002	Water	2						X	X		001 002
3															
4															
5															

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	6/21/17 1700	<i>[Signature]</i>	6/21/17 1000	
2	<i>[Signature]</i>	6-28-17 1635	<i>[Signature]</i>	6/28/17 08 57	
3					

Cooler Temperature on Receipt *21.8* °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30222311



Client Name: PACE-KANSAS

Project # 2A

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7340768762384

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and initials of person examining contents: JA 6/22/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:		/		
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>JA</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr	/			Initial when completed: <u>JA</u> Date: <u>6/22/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Sample Condition Upon Receipt Pittsburgh

30 2 2 2 3 1 1



Client Name: PACE-KANSAS

Project # 2A

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 734076876284

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2A 6/22/17

Comments:

	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:		/		
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>2A</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>2A</u> Date: <u>6/22/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

August 22, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60247863

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on July 01, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised Report_rev.1 Per the client's request, the samples 60247863-003, -004, and -005 were re-evaluated down to the MDL.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60247863001	BAA-6-062917	Water	06/29/17 10:01	07/01/17 09:00
60247863002	BAA-2-062917	Water	06/29/17 11:52	07/01/17 09:00
60247863003	BAA-4-062917	Water	06/29/17 13:13	07/01/17 09:00
60247863004	BAA-3-062917	Water	06/29/17 14:32	07/01/17 09:00
60247863005	DUP-062917	Water	06/29/17 06:00	07/01/17 09:00

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60247863001	BAA-6-062917	EPA 200.7	SMW, TDS	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
60247863002	BAA-2-062917	EPA 300.0	OL	3	PASI-K
		EPA 200.7	TDS	7	PASI-K
		EPA 200.8	SMW	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
60247863003	BAA-4-062917	SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP, SMW	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
60247863004	BAA-3-062917	SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW, TDS	7	PASI-K
		EPA 200.8	JGP, SMW	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
60247863005	DUP-062917	Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		EPA 200.7	SMW, TDS	7	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	JGP, SMW	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	JSS	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 484970

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60247861001,60247926002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1986117)
 - Calcium
- MSD (Lab ID: 1986118)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 484967

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- BAA-3-062917 (Lab ID: 60247863004)
 - Thallium, Total Recoverable
- BAA-4-062917 (Lab ID: 60247863003)
 - Cadmium, Total Recoverable
 - Antimony, Total Recoverable
 - Thallium, Total Recoverable
- DUP-062917 (Lab ID: 60247863005)
 - Thallium, Total Recoverable

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 264520

1e: Ra-228 activity in the MB is greater than the associated MDC and RL of 1.0 pCi/L. Samples with activity results below their sample specific MDC or the RL are reportable without qualification.

- BLANK (Lab ID: 1302880)
- Radium-228

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-2-062917 (Lab ID: 60247863002)
- BAA-3-062917 (Lab ID: 60247863004)
- BAA-4-062917 (Lab ID: 60247863003)
- BAA-6-062917 (Lab ID: 60247863001)
- DUP-062917 (Lab ID: 60247863005)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: August 22, 2017

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-6-062917		Lab ID: 60247863001	Collected: 06/29/17 10:01	Received: 07/01/17 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.019	mg/L	0.0050	1	07/12/17 16:35	07/16/17 16:46	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 16:46	7440-41-7	
Boron, Total Recoverable	2.6	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:09	7440-42-8	
Calcium, Total Recoverable	515	mg/L	0.10	1	07/12/17 16:35	07/16/17 16:46	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:09	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:09	7439-92-1	
Lithium	0.056	mg/L	0.010	1	07/12/17 16:35	07/16/17 16:46	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7440-36-0	
Arsenic, Total Recoverable	0.0016	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	07/12/17 16:35	07/16/17 15:22	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7440-48-4	
Molybdenum, Total Recoverable	0.0031	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:22	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	07/17/17 16:19	07/19/17 10:30	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3140	mg/L	5.0	1		07/06/17 10:54		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	6.8	Std. Units	0.10	1		07/05/17 11:01		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	215	mg/L	20.0	20		07/23/17 19:28	16887-00-6	
Fluoride	0.35	mg/L	0.20	1		07/22/17 19:27	16984-48-8	
Sulfate	1670	mg/L	200	200		07/23/17 19:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-2-062917	Lab ID: 60247863002	Collected: 06/29/17 11:52	Received: 07/01/17 09:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.040	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:13	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/15/17 14:13	7440-41-7	
Boron, Total Recoverable	0.99	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:13	7440-42-8	
Calcium, Total Recoverable	155	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:13	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:13	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:13	7439-92-1	
Lithium	0.021	mg/L	0.010	1	07/12/17 16:35	07/15/17 14:13	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7440-36-0	
Arsenic, Total Recoverable	0.0049	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	07/12/17 16:35	07/16/17 15:26	7440-43-9	
Cobalt, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7440-48-4	
Molybdenum, Total Recoverable	0.030	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:26	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	07/17/17 16:19	07/19/17 10:32	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1180	mg/L	5.0	1		07/06/17 10:54		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		07/05/17 11:07		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	115	mg/L	10.0	10		07/23/17 19:59	16887-00-6	
Fluoride	0.44	mg/L	0.20	1		07/22/17 19:41	16984-48-8	
Sulfate	591	mg/L	50.0	50		07/23/17 20:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-4-062917		Lab ID: 60247863003	Collected: 06/29/17 13:13	Received: 07/01/17 09:00	Matrix: Water			
Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.028	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:17	7440-39-3	
Beryllium, Total Recoverable	0.0014	mg/L	0.0010	1	07/12/17 16:35	07/15/17 14:17	7440-41-7	
Boron, Total Recoverable	0.89	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:17	7440-42-8	
Calcium, Total Recoverable	350	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:17	7440-70-2	
Chromium, Total Recoverable	0.0015J	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:17	7440-47-3	
Lead, Total Recoverable	0.0026J	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:17	7439-92-1	
Lithium	0.013	mg/L	0.010	1	07/12/17 16:35	07/15/17 14:17	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.00013	mg/L	0.0050	5	07/12/17 16:35	07/21/17 12:10	7440-36-0	D3
Arsenic, Total Recoverable	0.0075	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:39	7440-38-2	
Cadmium, Total Recoverable	<0.000089	mg/L	0.0025	5	07/12/17 16:35	07/21/17 12:10	7440-43-9	D3
Cobalt, Total Recoverable	0.023	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:39	7440-48-4	
Molybdenum, Total Recoverable	0.12	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:39	7439-98-7	
Selenium, Total Recoverable	0.00018J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:39	7782-49-2	
Thallium, Total Recoverable	<0.00018	mg/L	0.0050	5	07/12/17 16:35	07/21/17 12:10	7440-28-0	D3
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.000024	mg/L	0.00020	1	07/17/17 16:19	07/19/17 10:34	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3530	mg/L	5.0	1		07/06/17 10:55		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		07/05/17 11:17		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	173	mg/L	20.0	20		07/23/17 20:31	16887-00-6	
Fluoride	0.34	mg/L	0.20	1		07/22/17 19:56	16984-48-8	
Sulfate	2200	mg/L	200	200		07/23/17 20:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-3-062917	Lab ID: 60247863004	Collected: 06/29/17 14:32	Received: 07/01/17 09:00	Matrix: Water				
Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.0074	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:28	7440-39-3	
Beryllium, Total Recoverable	0.0019	mg/L	0.0010	1	07/12/17 16:35	07/15/17 14:28	7440-41-7	
Boron, Total Recoverable	2.1	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:28	7440-42-8	
Calcium, Total Recoverable	454	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:28	7440-70-2	
Chromium, Total Recoverable	0.00087J	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:28	7440-47-3	
Lead, Total Recoverable	0.0034J	mg/L	0.0050	1	07/12/17 16:35	07/16/17 16:51	7439-92-1	
Lithium	0.087	mg/L	0.010	1	07/12/17 16:35	07/15/17 14:28	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	0.000062J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:44	7440-36-0	
Arsenic, Total Recoverable	0.00070J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:44	7440-38-2	
Cadmium, Total Recoverable	<0.000018	mg/L	0.00050	1	07/12/17 16:35	07/16/17 15:44	7440-43-9	
Cobalt, Total Recoverable	0.00016J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:44	7440-48-4	
Molybdenum, Total Recoverable	0.0015	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:44	7439-98-7	
Selenium, Total Recoverable	<0.000086	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:44	7782-49-2	
Thallium, Total Recoverable	<0.00018	mg/L	0.0050	5	07/12/17 16:35	07/21/17 12:18	7440-28-0	D3
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.000024	mg/L	0.00020	1	07/17/17 16:19	07/19/17 10:36	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	3210	mg/L	5.0	1		07/06/17 10:56		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1	Std. Units	0.10	1		07/05/17 12:01		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	158	mg/L	20.0	20		07/23/17 21:03	16887-00-6	
Fluoride	0.86	mg/L	0.20	1		07/22/17 20:11	16984-48-8	
Sulfate	1940	mg/L	200	200		07/23/17 21:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: DUP-062917		Lab ID: 60247863005	Collected: 06/29/17 06:00	Received: 07/01/17 09:00	Matrix: Water			
Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.018	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:32	7440-39-3	
Beryllium, Total Recoverable	0.0021	mg/L	0.0010	1	07/12/17 16:35	07/15/17 14:32	7440-41-7	
Boron, Total Recoverable	2.6	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:32	7440-42-8	
Calcium, Total Recoverable	484	mg/L	0.10	1	07/12/17 16:35	07/15/17 14:32	7440-70-2	
Chromium, Total Recoverable	<0.00072	mg/L	0.0050	1	07/12/17 16:35	07/15/17 14:32	7440-47-3	
Lead, Total Recoverable	0.0040J	mg/L	0.0050	1	07/12/17 16:35	07/16/17 16:53	7439-92-1	
Lithium	0.068	mg/L	0.010	1	07/12/17 16:35	07/15/17 14:32	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	0.00014J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:48	7440-36-0	
Arsenic, Total Recoverable	0.0013	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:48	7440-38-2	
Cadmium, Total Recoverable	<0.000018	mg/L	0.00050	1	07/12/17 16:35	07/16/17 15:48	7440-43-9	
Cobalt, Total Recoverable	0.00072J	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:48	7440-48-4	
Molybdenum, Total Recoverable	0.0032	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:48	7439-98-7	
Selenium, Total Recoverable	<0.000086	mg/L	0.0010	1	07/12/17 16:35	07/16/17 15:48	7782-49-2	
Thallium, Total Recoverable	<0.00018	mg/L	0.0050	5	07/12/17 16:35	07/21/17 12:27	7440-28-0	D3
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.000024	mg/L	0.00020	1	07/17/17 16:19	07/19/17 10:38	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	2830	mg/L	5.0	1		07/06/17 11:05		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	6.8	Std. Units	0.10	1		07/05/17 10:58		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	217	mg/L	20.0	20		07/23/17 22:07	16887-00-6	
Fluoride	0.35	mg/L	0.20	1		07/22/17 20:25	16984-48-8	
Sulfate	1500	mg/L	200	200		07/23/17 22:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 485719 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1989430 Matrix: Water
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	07/19/17 09:59	

LABORATORY CONTROL SAMPLE: 1989431

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0050	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1989432 1989433

Parameter	Units	60248711001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury	mg/L	ND	.005	0.0050	.005	0.0050	99	101	70-130	2	20	H3

MATRIX SPIKE SAMPLE: 1989434

Parameter	Units	60247863005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000024	.005	0.0049	98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 484970 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1986115 Matrix: Water
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	07/15/17 13:25	
Beryllium	mg/L	<0.0010	0.0010	07/15/17 13:25	
Boron	mg/L	<0.10	0.10	07/15/17 13:25	
Calcium	mg/L	<0.10	0.10	07/15/17 13:25	
Chromium	mg/L	<0.0050	0.0050	07/15/17 13:25	
Lead	mg/L	<0.0050	0.0050	07/15/17 13:25	
Lithium	mg/L	<0.010	0.010	07/15/17 13:25	

LABORATORY CONTROL SAMPLE: 1986116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.96	96	85-115	
Beryllium	mg/L	1	0.94	94	85-115	
Boron	mg/L	1	0.95	95	85-115	
Calcium	mg/L	10	9.3	93	85-115	
Chromium	mg/L	1	0.96	96	85-115	
Lead	mg/L	1	1.0	105	85-115	
Lithium	mg/L	1	0.99	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1986117 1986118

Parameter	Units	60247861001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium	mg/L	0.29	1	1	1.3	1.2	97	96	70-130	1	20		
Beryllium	mg/L	<0.0010	1	1	0.93	0.92	93	92	70-130	1	20		
Boron	mg/L	0.11	1	1	1.1	1.1	99	97	70-130	2	20		
Calcium	mg/L	90.4	10	10	96.4	96.3	60	59	70-130	0	20	M1	
Chromium	mg/L	<0.0050	1	1	0.96	0.94	96	94	70-130	2	20		
Lead	mg/L	<0.0050	1	1	1.0	1.0	103	101	70-130	2	20		
Lithium	mg/L	0.015	1	1	1.0	1.0	102	100	70-130	1	20		

MATRIX SPIKE SAMPLE: 1986119

Parameter	Units	60247926002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	0.032	1	1.1	102	70-130	
Beryllium	mg/L	0.0011	1	0.97	97	70-130	
Boron	mg/L	3.6	1	4.6	98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

MATRIX SPIKE SAMPLE:		1986119					
Parameter	Units	60247926002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	289	10	302	129	70-130	
Chromium	mg/L	0.00085J	1	0.99	99	70-130	
Lead	mg/L	0.0028J	1	0.94	94	70-130	
Lithium	mg/L	0.015	1	1.1	111	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 484967 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1986099 Matrix: Water
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	07/13/17 20:33	
Arsenic	mg/L	<0.0010	0.0010	07/13/17 20:33	
Cadmium	mg/L	<0.00050	0.00050	07/13/17 20:33	
Cobalt	mg/L	<0.0010	0.0010	07/13/17 20:33	
Molybdenum	mg/L	<0.0010	0.0010	07/13/17 20:33	
Selenium	mg/L	<0.0010	0.0010	07/13/17 20:33	
Thallium	mg/L	<0.0010	0.0010	07/13/17 20:33	

LABORATORY CONTROL SAMPLE: 1986100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.041	102	85-115	
Arsenic	mg/L	.04	0.040	100	85-115	
Cadmium	mg/L	.04	0.038	96	85-115	
Cobalt	mg/L	.04	0.038	95	85-115	
Molybdenum	mg/L	.04	0.040	101	85-115	
Selenium	mg/L	.04	0.039	96	85-115	
Thallium	mg/L	.04	0.040	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1986101 1986102

Parameter	Units	60248127001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	mg/L	4.3 ug/L	.04	.04	0.045	0.044	101	100	70-130	1	20		
Arsenic	mg/L	8.5 ug/L	.04	.04	0.047	0.046	96	94	70-130	2	20		
Cadmium	mg/L	<1.0 ug/L	.04	.04	0.034	0.033	86	83	70-130	3	20		
Cobalt	mg/L	<2.0 ug/L	.04	.04	0.036	0.035	89	87	70-130	3	20		
Molybdenum	mg/L	47.9 ug/L	.04	.04	0.090	0.089	104	102	70-130	1	20		
Selenium	mg/L	4.3 ug/L	.04	.04	0.042	0.040	94	90	70-130	4	20		
Thallium	mg/L	<2.0 ug/L	.04	.04	0.037	0.036	91	90	70-130	2	20		

MATRIX SPIKE SAMPLE: 1986103

Parameter	Units	60247926001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.000077J	.04	0.036	90	70-130	
Arsenic	mg/L	0.00098J	.04	0.038	93	70-130	
Cadmium	mg/L	<0.000018	.04	0.033	83	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

MATRIX SPIKE SAMPLE:		1986103					
Parameter	Units	60247926001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	0.00052J	.04	0.034	83	70-130	
Molybdenum	mg/L	0.011	.04	0.049	96	70-130	
Selenium	mg/L	<0.000086	.04	0.035	88	70-130	
Thallium	mg/L	0.000057J	.04	0.033	83	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 484031

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1982762

Matrix: Water

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	07/06/17 10:49	

LABORATORY CONTROL SAMPLE: 1982763

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	963	96	80-120	

SAMPLE DUPLICATE: 1982764

Parameter	Units	60247863001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3140	3070	2	10	H1

SAMPLE DUPLICATE: 1982765

Parameter	Units	60247918001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	520	530	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 483928 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863005

SAMPLE DUPLICATE: 1982407

Parameter	Units	60247547002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 483969 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60247863004

SAMPLE DUPLICATE: 1982512

Parameter	Units	60247835001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.3	8.2	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60247863

QC Batch: 486562 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1992836 Matrix: Water
Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	07/22/17 15:31	

LABORATORY CONTROL SAMPLE: 1992837

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1992838 1992839

Parameter	Units	60247861001		60247861002		60247861003		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Fluoride	mg/L	0.35	2.5	2.5	3.0	3.0	106	107	80-120	1	15

MATRIX SPIKE SAMPLE: 1992840

Parameter	Units	60247861002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.31	2.5	2.5	87	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 486575 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1993281 Matrix: Water
 Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	07/23/17 12:34	
Sulfate	mg/L	<1.0	1.0	07/23/17 12:34	

LABORATORY CONTROL SAMPLE: 1993282

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1993283 1993284

Parameter	Units	60247861001		60247861002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	49.7	25	25	76.2	76.5	106	107	80-120	0	15		
Sulfate	mg/L	93.1	25	25	120	120	107	106	80-120	0	15		

MATRIX SPIKE SAMPLE: 1993285

Parameter	Units	60247861002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	35.6	25	61.0	102	80-120	
Sulfate	mg/L	247	100	360	114	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-6-062917 **Lab ID: 60247863001** Collected: 06/29/17 10:01 Received: 07/01/17 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.14 ± 0.637 (0.660) C:NA T:82%	pCi/L	07/17/17 12:04	13982-63-3	
Radium-228	EPA 904.0	2.50 ± 0.767 (1.01) C:74% T:69%	pCi/L	07/19/17 11:38	15262-20-1	
Total Radium	Total Radium Calculation	3.64 ± 1.40 (1.67)	pCi/L	07/20/17 16:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-2-062917 **Lab ID: 60247863002** Collected: 06/29/17 11:52 Received: 07/01/17 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.35 ± 0.700 (0.829) C:NA T:96%	pCi/L	07/17/17 12:04	13982-63-3	
Radium-228	EPA 904.0	0.992 ± 0.481 (0.837) C:74% T:79%	pCi/L	07/19/17 11:38	15262-20-1	
Total Radium	Total Radium Calculation	2.34 ± 1.18 (1.67)	pCi/L	07/20/17 16:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-4-062917 **Lab ID: 60247863003** Collected: 06/29/17 13:13 Received: 07/01/17 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.305 ± 0.361 (0.567) C:NA T:91%	pCi/L	07/17/17 12:04	13982-63-3	
Radium-228	EPA 904.0	0.701 ± 0.492 (0.941) C:77% T:84%	pCi/L	07/19/17 19:18	15262-20-1	
Total Radium	Total Radium Calculation	1.01 ± 0.853 (1.51)	pCi/L	07/20/17 16:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: BAA-3-062917 **Lab ID: 60247863004** Collected: 06/29/17 14:32 Received: 07/01/17 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.05 ± 0.592 (0.663) C:NA T:89%	pCi/L	07/17/17 12:04	13982-63-3	
Radium-228	EPA 904.0	1.02 ± 0.572 (1.02) C:80% T:72%	pCi/L	07/19/17 19:18	15262-20-1	
Total Radium	Total Radium Calculation	2.07 ± 1.16 (1.68)	pCi/L	07/20/17 16:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Sample: DUP-062917 **Lab ID: 60247863005** Collected: 06/29/17 06:00 Received: 07/01/17 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.518 ± 0.405 (0.476) C:NA T:90%	pCi/L	07/17/17 12:22	13982-63-3	
Radium-228	EPA 904.0	2.16 ± 0.704 (0.878) C:79% T:73%	pCi/L	07/19/17 18:38	15262-20-1	
Total Radium	Total Radium Calculation	2.68 ± 1.11 (1.35)	pCi/L	07/20/17 16:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 264358

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1301994

Matrix: Water

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.062 ± 0.285 (0.671) C:NA T:92%	pCi/L	07/17/17 12:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

QC Batch: 264520 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

METHOD BLANK: 1302880 Matrix: Water

Associated Lab Samples: 60247863001, 60247863002, 60247863003, 60247863004, 60247863005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.14 ± 0.453 (0.704) C:80% T:79%	pCi/L	07/19/17 11:38	1e

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

1e Ra-228 activity in the MB is greater than the associated MDC and RL of 1.0 pCi/L. Samples with activity results below their sample specific MDC or the RL are reportable without qualification.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H1 Analysis conducted outside the EPA method holding time.

H3 Sample was received or analysis requested beyond the recognized method holding time.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60247863001	BAA-6-062917	EPA 200.7	484970	EPA 200.7	485208
60247863002	BAA-2-062917	EPA 200.7	484970	EPA 200.7	485208
60247863003	BAA-4-062917	EPA 200.7	484970	EPA 200.7	485208
60247863004	BAA-3-062917	EPA 200.7	484970	EPA 200.7	485208
60247863005	DUP-062917	EPA 200.7	484970	EPA 200.7	485208
60247863001	BAA-6-062917	EPA 200.8	484967	EPA 200.8	485209
60247863002	BAA-2-062917	EPA 200.8	484967	EPA 200.8	485209
60247863003	BAA-4-062917	EPA 200.8	484967	EPA 200.8	485209
60247863004	BAA-3-062917	EPA 200.8	484967	EPA 200.8	485209
60247863005	DUP-062917	EPA 200.8	484967	EPA 200.8	485209
60247863001	BAA-6-062917	EPA 245.1	485719	EPA 245.1	485787
60247863002	BAA-2-062917	EPA 245.1	485719	EPA 245.1	485787
60247863003	BAA-4-062917	EPA 245.1	485719	EPA 245.1	485787
60247863004	BAA-3-062917	EPA 245.1	485719	EPA 245.1	485787
60247863005	DUP-062917	EPA 245.1	485719	EPA 245.1	485787
60247863001	BAA-6-062917	EPA 903.1	264358		
60247863002	BAA-2-062917	EPA 903.1	264358		
60247863003	BAA-4-062917	EPA 903.1	264358		
60247863004	BAA-3-062917	EPA 903.1	264358		
60247863005	DUP-062917	EPA 903.1	264358		
60247863001	BAA-6-062917	EPA 904.0	264520		
60247863002	BAA-2-062917	EPA 904.0	264520		
60247863003	BAA-4-062917	EPA 904.0	264520		
60247863004	BAA-3-062917	EPA 904.0	264520		
60247863005	DUP-062917	EPA 904.0	264520		
60247863001	BAA-6-062917	Total Radium Calculation	265757		
60247863002	BAA-2-062917	Total Radium Calculation	265757		
60247863003	BAA-4-062917	Total Radium Calculation	265757		
60247863004	BAA-3-062917	Total Radium Calculation	265757		
60247863005	DUP-062917	Total Radium Calculation	265757		
60247863001	BAA-6-062917	SM 2540C	484031		
60247863002	BAA-2-062917	SM 2540C	484031		
60247863003	BAA-4-062917	SM 2540C	484031		
60247863004	BAA-3-062917	SM 2540C	484031		
60247863005	DUP-062917	SM 2540C	484031		
60247863001	BAA-6-062917	SM 4500-H+B	483928		
60247863002	BAA-2-062917	SM 4500-H+B	483928		
60247863003	BAA-4-062917	SM 4500-H+B	483928		
60247863004	BAA-3-062917	SM 4500-H+B	483969		
60247863005	DUP-062917	SM 4500-H+B	483928		
60247863001	BAA-6-062917	EPA 300.0	486562		
60247863001	BAA-6-062917	EPA 300.0	486575		
60247863002	BAA-2-062917	EPA 300.0	486562		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60247863

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60247863002	BAA-2-062917	EPA 300.0	486575		
60247863003	BAA-4-062917	EPA 300.0	486562		
60247863003	BAA-4-062917	EPA 300.0	486575		
60247863004	BAA-3-062917	EPA 300.0	486562		
60247863004	BAA-3-062917	EPA 300.0	486575		
60247863005	DUP-062917	EPA 300.0	486562		
60247863005	DUP-062917	EPA 300.0	486575		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60247863
60247863

Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3-8/28 Corr. Factor CF +2.9 CF +0.2 Corrected 4.0/3.0

Date and initials of person examining contents:

PN 7/1/17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input checked="" type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amw Date: 7/3/17

Chain of Custody



Workorder: 60247863

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 7/1/2017

Results Requested By: 7/26/2017

Report To	Subcontract To	Requested Analysis
-----------	----------------	--------------------

Heather Wilson
Pace Analytical Kansas
9608 Loiret Blvd.
Lenexa, KS 66219
Phone 1(913)563-1407

Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600

WO#: 30223450

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers							Radium-228	Radium-226 & Total Radium	LAB USE ONLY
						Unpreserved	Preserved	1	2	3	4	5			
1	BAA-6-062917	PS	6/29/2017 10:01	60247863001	Water	2							X	X	001
2	BAA-2-062917	PS	6/29/2017 11:52	60247863002	Water	2							X	X	002
3	BAA-4-062917	PS	6/29/2017 13:13	60247863003	Water	2							X	X	003
4	BAA-3-062917	PS	6/29/2017 14:32	60247863004	Water	2							X	X	004
5	DUP-062917	PS	6/29/2017 06:00	60247863005	Water	2							X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1		7/1/17 17:00		7-6-17/1950	
2					
3					

Cooler Temperature on Receipt N/A Custody Seal Y or (N) Received on Ice Y or (N) Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30223450



Client Name: Pace, KS

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 7285 6593 7895

Label	<u>ANL</u>
LIMS Login	<u>ANL</u>

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
 Temp should be above freezing to 6°C

Date and Initials of person examining contents: ANL 7-6-17

Comments:

	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:		X		4.
Sample Labels match COC:	X			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used:	X			10.
-Pace Containers Used:	X			
Containers Intact:	X			11.
Orthophosphate field filtered			X	12.
Organic Samples checked for dechlorination:			X	13.
Filtered volume received for Dissolved tests			X	14.
All containers have been checked for preservation.	X			15.
All containers needing preservation are found to be in compliance with EPA recommendation.	X			<u>PHL2</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ANL</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			X	16.
Trip Blank Present:		X		17.
Trip Blank Custody Seals Present			X	
Rad Aqueous Samples Screened > 0.5 mrem/hr		X		Initial when completed: <u>ANL</u> Date: <u>7-6-17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-9
July 2017 Sampling Event
Laboratory Analytical Report

August 10, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR Groundwater
Pace Project No.: 60248974

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on July 19, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60248974001	BAA-7-071817	Water	07/18/17 08:30	07/19/17 08:35
60248974002	DUP-071817	Water	07/18/17 06:00	07/19/17 08:35

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60248974001	BAA-7-071817	EPA 200.7	JGP	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		60248974002	DUP-071817	EPA 200.7	JGP
EPA 200.8	JGP			7	PASI-K
EPA 245.1	SMW			1	PASI-K
EPA 903.1	KAC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	JSS			1	PASI-K
SM 4500-H+B	HMM			1	PASI-K
EPA 300.0	OL			3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 487074

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60248973001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1994911)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 487056

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 7570332001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1994804)
- Molybdenum

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 486931

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60248730001,60249386003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1994331)
- Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-071817 (Lab ID: 60248974001)
- DUP-071817 (Lab ID: 60248974002)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: August 10, 2017

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Sample: BAA-7-071817		Lab ID: 60248974001		Collected: 07/18/17 08:30		Received: 07/19/17 08:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.041	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:23	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/09/17 12:23	7440-41-7		
Boron, Total Recoverable	1.3	mg/L	0.10	1	07/26/17 12:10	08/09/17 12:23	7440-42-8		
Calcium, Total Recoverable	235	mg/L	0.10	1	07/26/17 12:10	08/09/17 12:23	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:23	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:23	7439-92-1		
Lithium	0.011	mg/L	0.010	1	07/26/17 12:10	08/09/17 12:23	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	07/26/17 12:10	08/03/17 16:53	7440-43-9		
Cobalt, Total Recoverable	0.0011	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7440-48-4		
Molybdenum, Total Recoverable	0.062	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:53	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	07/25/17 17:15	07/26/17 16:05	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1760	mg/L	5.0	1		07/20/17 13:31			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.3	Std. Units	0.10	1		07/20/17 12:30		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	190	mg/L	20.0	20		08/05/17 20:51	16887-00-6		
Fluoride	0.73	mg/L	0.20	1		08/04/17 20:46	16984-48-8		
Sulfate	927	mg/L	100	100		08/05/17 21:04	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Sample: DUP-071817		Lab ID: 60248974002		Collected: 07/18/17 06:00		Received: 07/19/17 08:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.16	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:37	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/09/17 12:37	7440-41-7		
Boron, Total Recoverable	0.19	mg/L	0.10	1	07/26/17 12:10	08/09/17 12:37	7440-42-8		
Calcium, Total Recoverable	131	mg/L	0.10	1	07/26/17 12:10	08/09/17 12:37	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:37	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	07/26/17 12:10	08/09/17 12:37	7439-92-1		
Lithium	0.025	mg/L	0.010	1	07/26/17 12:10	08/09/17 12:37	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	07/26/17 12:10	08/03/17 16:59	7440-43-9		
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7440-48-4		
Molybdenum, Total Recoverable	0.063	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/26/17 12:10	08/03/17 16:59	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	07/25/17 17:15	07/26/17 16:07	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1820	mg/L	5.0	1		07/20/17 13:32			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.3	Std. Units	0.10	1		07/20/17 12:25		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	189	mg/L	20.0	20		08/05/17 21:16	16887-00-6		
Fluoride	0.78	mg/L	0.20	1		08/04/17 21:01	16984-48-8		
Sulfate	942	mg/L	100	100		08/05/17 21:29	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 486931 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 1994327 Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	07/26/17 15:23	

LABORATORY CONTROL SAMPLE: 1994328

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0048	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1994329 1994330

Parameter	Units	60248730001		MS		MSD		MS		MSD		% Rec		Max		Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD				
Mercury	mg/L	ND	.005	.005	.005	0.0049	0.0050	98	100	70-130	2	20				

MATRIX SPIKE SAMPLE: 1994331

Parameter	Units	60249386003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0024	47	70-130	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 487074 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 1994908 Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/09/17 12:09	
Beryllium	mg/L	<0.0010	0.0010	08/09/17 12:09	
Boron	mg/L	<0.10	0.10	08/09/17 12:09	
Calcium	mg/L	<0.10	0.10	08/09/17 12:09	
Chromium	mg/L	<0.0050	0.0050	08/09/17 12:09	
Lead	mg/L	<0.0050	0.0050	08/09/17 12:09	
Lithium	mg/L	<0.010	0.010	08/09/17 12:09	

LABORATORY CONTROL SAMPLE: 1994909

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.93	93	85-115	
Beryllium	mg/L	1	0.94	94	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.5	95	85-115	
Chromium	mg/L	1	0.95	95	85-115	
Lead	mg/L	1	0.99	99	85-115	
Lithium	mg/L	1	0.96	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1994910 1994911

Parameter	Units	60248973001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium	mg/L	0.067	1	1	1.1	0.99	106	92	70-130	13	20		
Beryllium	mg/L	<0.0010	1	1	1.0	0.95	103	95	70-130	8	20		
Boron	mg/L	2.9	1	1	4.1	3.8	115	85	70-130	8	20		
Calcium	mg/L	137	10	10	144	143	75	57	70-130	1	20	M1	
Chromium	mg/L	<0.0050	1	1	0.98	0.95	98	95	70-130	3	20		
Lead	mg/L	<0.0050	1	1	0.97	0.93	97	92	70-130	5	20		
Lithium	mg/L	0.012	1	1	1.1	1.0	114	101	70-130	11	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater
Pace Project No.: 60248974

QC Batch: 487056 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 1994801 Matrix: Water
Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	07/28/17 13:09	
Arsenic	mg/L	<0.0010	0.0010	07/28/17 13:09	
Cadmium	mg/L	<0.00050	0.00050	07/28/17 13:09	
Cobalt	mg/L	<0.0010	0.0010	07/28/17 13:09	
Molybdenum	mg/L	<0.0010	0.0010	07/28/17 13:09	
Selenium	mg/L	<0.0010	0.0010	07/28/17 13:09	
Thallium	mg/L	<0.0010	0.0010	07/28/17 13:09	

LABORATORY CONTROL SAMPLE: 1994802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.039	97	85-115	
Arsenic	mg/L	.04	0.039	97	85-115	
Cadmium	mg/L	.04	0.038	96	85-115	
Cobalt	mg/L	.04	0.039	98	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.039	96	85-115	
Thallium	mg/L	.04	0.038	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1994803 1994804

Parameter	Units	7570332001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Antimony	mg/L	ND	.04	.04	0.040	0.040	98	98	70-130	0	20		
Arsenic	mg/L	3.1 ug/L	.04	.04	0.042	0.042	97	97	70-130	0	20		
Cadmium	mg/L	ND	.04	.04	0.035	0.035	88	87	70-130	1	20		
Cobalt	mg/L	79.4 ug/L	.04	.04	0.12	0.12	95	102	70-130	2	20		
Molybdenum	mg/L	919 ug/L	.04	.04	0.95	0.98	80	151	70-130	3	20	M1	
Selenium	mg/L	0.024	.04	.04	0.060	0.062	90	94	70-130	3	20		
Thallium	mg/L	ND	.04	.04	0.033	0.033	82	81	70-130	1	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 486350	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60248974001, 60248974002	

METHOD BLANK: 1991663 Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	07/20/17 13:28	

LABORATORY CONTROL SAMPLE: 1991664

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	975	97	80-120	

SAMPLE DUPLICATE: 1991665

Parameter	Units	60249032001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	847	822	3	10	

SAMPLE DUPLICATE: 1991667

Parameter	Units	60248961006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	284	268	6	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 486204 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60248974001, 60248974002

SAMPLE DUPLICATE: 1991124

Parameter	Units	60248894005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.7	6.7	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 488423	Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0	Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60248974001, 60248974002	

METHOD BLANK: 1999945 Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	08/04/17 14:10	

LABORATORY CONTROL SAMPLE: 1999946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	100	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 488537 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 2000532 Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	08/05/17 16:58	
Sulfate	mg/L	<1.0	1.0	08/05/17 16:58	

LABORATORY CONTROL SAMPLE: 2000533

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Sulfate	mg/L	5	4.8	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2000534 2000535

Parameter	Units	60249497001		2000535		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Sulfate	mg/L	428	250	250	670	667	97	95	80-120	0	15	

MATRIX SPIKE SAMPLE: 2000536

Parameter	Units	60249555023 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	29.8	25	54.3	98	80-120	
Sulfate	mg/L	38.5	25	62.4	96	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Sample: BAA-7-071817 **Lab ID: 60248974001** Collected: 07/18/17 08:30 Received: 07/19/17 08:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.259 ± 0.476 (0.849) C:NA T:97%	pCi/L	08/02/17 21:36	13982-63-3	
Radium-228	EPA 904.0	1.23 ± 0.518 (0.870) C:81% T:82%	pCi/L	08/02/17 11:33	15262-20-1	
Total Radium	Total Radium Calculation	1.49 ± 0.994 (1.72)	pCi/L	08/04/17 11:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Sample: DUP-071817 **Lab ID: 60248974002** Collected: 07/18/17 06:00 Received: 07/19/17 08:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.479 ± 0.522 (0.822) C:NA T:94%	pCi/L	08/02/17 21:24	13982-63-3	
Radium-228	EPA 904.0	1.34 ± 0.572 (0.967) C:75% T:79%	pCi/L	08/02/17 11:33	15262-20-1	
Total Radium	Total Radium Calculation	1.82 ± 1.09 (1.79)	pCi/L	08/04/17 11:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 265797

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 1308986

Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.325 ± 0.299 (0.176) C:NA T:96%	pCi/L	08/02/17 20:33	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR Groundwater

Pace Project No.: 60248974

QC Batch: 265798

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60248974001, 60248974002

METHOD BLANK: 1308987

Matrix: Water

Associated Lab Samples: 60248974001, 60248974002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.412 ± 0.422 (0.873) C:78% T:69%	pCi/L	08/02/17 11:28	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR Groundwater

Pace Project No.: 60248974

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR Groundwater

Pace Project No.: 60248974

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60248974001	BAA-7-071817	EPA 200.7	487074	EPA 200.7	487127
60248974002	DUP-071817	EPA 200.7	487074	EPA 200.7	487127
60248974001	BAA-7-071817	EPA 200.8	487056	EPA 200.8	487128
60248974002	DUP-071817	EPA 200.8	487056	EPA 200.8	487128
60248974001	BAA-7-071817	EPA 245.1	486931	EPA 245.1	487027
60248974002	DUP-071817	EPA 245.1	486931	EPA 245.1	487027
60248974001	BAA-7-071817	EPA 903.1	265797		
60248974002	DUP-071817	EPA 903.1	265797		
60248974001	BAA-7-071817	EPA 904.0	265798		
60248974002	DUP-071817	EPA 904.0	265798		
60248974001	BAA-7-071817	Total Radium Calculation	267334		
60248974002	DUP-071817	Total Radium Calculation	267334		
60248974001	BAA-7-071817	SM 2540C	486350		
60248974002	DUP-071817	SM 2540C	486350		
60248974001	BAA-7-071817	SM 4500-H+B	486204		
60248974002	DUP-071817	SM 4500-H+B	486204		
60248974001	BAA-7-071817	EPA 300.0	488423		
60248974001	BAA-7-071817	EPA 300.0	488537		
60248974002	DUP-071817	EPA 300.0	488423		
60248974002	DUP-071817	EPA 300.0	488537		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60248974



Client Name: WQStar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.4 Corr. Factor CF +2.9 CF +0.2 Corrected 3.6

Date and initials of person examining contents:

P 7/19/17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

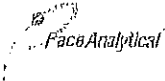
Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amw

Date: 7/19/17

Sample Condition Upon Receipt Pittsburgh



Client Name: PACE, KS

Project # 30224687

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 728565944691

Label	<u>ZH</u>
LIMS Login	<u>AMW</u>

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Thermometer Used _____ Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 7/20/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>PHC2</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ZH</u> Date/time of preservation: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>ZH</u> Date: <u>7/20/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS, The review is in the Status section of the Workorder Edit Screen.

August 21, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60249713

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on July 28, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER
Pace Project No.: 60249713

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60249713001	BAA-7-072717	Water	07/27/17 13:31	07/28/17 08:00

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60249713001	BAA-7-072717	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	NSM	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JMC1	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 487830

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60249708001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1997598)
 - Calcium
- MSD (Lab ID: 1997599)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 490179

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60249708001,60249708002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2006567)
 - Mercury
- MS (Lab ID: 2006569)
 - Mercury
- MSD (Lab ID: 2006568)
 - Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-072717 (Lab ID: 60249713001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: August 21, 2017

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Sample: BAA-7-072717	Lab ID: 60249713001	Collected: 07/27/17 13:31	Received: 07/28/17 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.037	mg/L	0.0050	1	07/31/17 16:51	08/13/17 15:41	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/31/17 16:51	08/13/17 15:41	7440-41-7	
Boron, Total Recoverable	1.1	mg/L	0.10	1	07/31/17 16:51	08/13/17 15:41	7440-42-8	
Calcium, Total Recoverable	256	mg/L	0.10	1	07/31/17 16:51	08/13/17 15:41	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	07/31/17 16:51	08/13/17 15:41	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	07/31/17 16:51	08/13/17 15:41	7439-92-1	
Lithium	0.013	mg/L	0.010	1	07/31/17 16:51	08/13/17 15:41	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	07/31/17 10:19	08/03/17 17:39	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7440-48-4	
Molybdenum, Total Recoverable	0.063	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	07/31/17 10:19	08/03/17 17:39	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	08/16/17 19:00	08/17/17 09:38	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1790	mg/L	5.0	1		08/02/17 15:30		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		08/02/17 15:30		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	190	mg/L	20.0	20		08/06/17 23:41	16887-00-6	
Fluoride	0.90	mg/L	0.20	1		08/05/17 23:45	16984-48-8	
Sulfate	912	mg/L	100	100		08/06/17 23:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 490179 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60249713001

METHOD BLANK: 2006565 Matrix: Water
 Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	08/17/17 09:18	

LABORATORY CONTROL SAMPLE: 2006566

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0052	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2006567 2006568

Parameter	Units	60249708001		60249708002		60249708003		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.000024	.005	.005	0.0027	0.0027	54	54	70-130	1	20 M1

MATRIX SPIKE SAMPLE: 2006569

Parameter	Units	60249708002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000024	.005	0.0025	50	70-130	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60249713

QC Batch: 487830 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60249713001

METHOD BLANK: 1997596 Matrix: Water
Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/13/17 15:20	
Beryllium	mg/L	<0.0010	0.0010	08/13/17 15:20	
Boron	mg/L	<0.10	0.10	08/13/17 15:20	
Calcium	mg/L	<0.10	0.10	08/13/17 15:20	
Chromium	mg/L	<0.0050	0.0050	08/13/17 15:20	
Lead	mg/L	<0.0050	0.0050	08/13/17 15:20	
Lithium	mg/L	<0.010	0.010	08/13/17 15:20	

LABORATORY CONTROL SAMPLE: 1997597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	102	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	9.6	96	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	1.0	104	85-115	
Lithium	mg/L	1	1.1	108	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1997598 1997599

Parameter	Units	60249708001		1997598		1997599		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Barium	mg/L	0.12	1	1	1.1	1.2	100	104	70-130	4	20		
Beryllium	mg/L	<0.00016	1	1	0.98	1.0	98	104	70-130	6	20		
Boron	mg/L	1.8	1	1	2.8	2.8	98	105	70-130	3	20		
Calcium	mg/L	480	10	10	508	587	280	1070	70-130	15	20 M1		
Chromium	mg/L	0.0015J	1	1	1.0	1.0	101	103	70-130	1	20		
Lead	mg/L	<0.0048	1	1	0.89	0.90	89	90	70-130	1	20		
Lithium	mg/L	0.42	1	1	1.5	1.5	111	105	70-130	5	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 487637 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60249713001

METHOD BLANK: 1997155 Matrix: Water

Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/01/17 10:32	
Arsenic	mg/L	<0.0010	0.0010	08/01/17 10:32	
Cadmium	mg/L	<0.00050	0.00050	08/01/17 10:32	
Cobalt	mg/L	<0.0010	0.0010	08/01/17 10:32	
Molybdenum	mg/L	<0.0010	0.0010	08/01/17 10:32	
Selenium	mg/L	<0.0010	0.0010	08/01/17 10:32	
Thallium	mg/L	<0.0010	0.0010	08/01/17 10:32	

LABORATORY CONTROL SAMPLE: 1997156

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	99	85-115	
Arsenic	mg/L	.04	0.040	100	85-115	
Cadmium	mg/L	.04	0.039	98	85-115	
Cobalt	mg/L	.04	0.040	99	85-115	
Molybdenum	mg/L	.04	0.040	100	85-115	
Selenium	mg/L	.04	0.039	97	85-115	
Thallium	mg/L	.04	0.036	91	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1997157 1997158

Parameter	Units	60249776001		1997157		1997158		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	ND	ND	.04	.04	0.040	0.040	97	98	70-130	1	20		
Arsenic	mg/L	57.9 ug/L	57.9 ug/L	.04	.04	0.099	0.099	103	102	70-130	1	20		
Cadmium	mg/L	ND	ND	.04	.04	0.038	0.038	95	94	70-130	2	20		
Cobalt	mg/L	7.3 ug/L	7.3 ug/L	.04	.04	0.046	0.046	96	96	70-130	1	20		
Molybdenum	mg/L	ND	ND	.04	.04	0.042	0.042	102	103	70-130	0	20		
Selenium	mg/L	ND	ND	.04	.04	0.038	0.041	94	100	70-130	6	20		
Thallium	mg/L	ND	ND	.04	.04	0.036	0.037	90	91	70-130	1	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 488160	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60249713001	

METHOD BLANK: 1998724 Matrix: Water
Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/02/17 15:27	

LABORATORY CONTROL SAMPLE: 1998725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1040	104	80-120	

SAMPLE DUPLICATE: 1998726

Parameter	Units	60249753001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	686	697	2	10	

SAMPLE DUPLICATE: 1998727

Parameter	Units	60249753005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	666	656	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 487921 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60249713001

SAMPLE DUPLICATE: 1997822

Parameter	Units	60249520001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.2	6.2	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 488540	Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0	Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60249713001	

METHOD BLANK: 2000546 Matrix: Water
Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	08/05/17 17:38	

LABORATORY CONTROL SAMPLE: 2000547

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.6	103	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch:	488592	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	60249713001		

METHOD BLANK: 2000742 Matrix: Water

Associated Lab Samples: 60249713001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	08/06/17 20:14	
Sulfate	mg/L	<1.0	1.0	08/06/17 20:14	

LABORATORY CONTROL SAMPLE: 2000743

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2000744 2000745

Parameter	Units	60249708001		2000745		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	14300	5000	20000	19800	115	111	80-120	1	15	
Sulfate	mg/L	619	500	1070	1080	90	93	80-120	1	15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Sample: BAA-7-072717 **Lab ID: 60249713001** Collected: 07/27/17 13:31 Received: 07/28/17 08:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.387 ± 0.329 (0.407) C:NA T:93%	pCi/L	08/16/17 10:46	13982-63-3	
Radium-228	EPA 904.0	0.361 ± 0.314 (0.625) C:83% T:68%	pCi/L	08/11/17 15:21	15262-20-1	
Total Radium	Total Radium Calculation	0.748 ± 0.643 (1.03)	pCi/L	08/21/17 12:03	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 267153

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60249713001

METHOD BLANK: 1315208

Matrix: Water

Associated Lab Samples: 60249713001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.593 ± 0.503 (0.624) C:NA T:95%	pCi/L	08/16/17 10:12	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

QC Batch: 267154

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60249713001

METHOD BLANK: 1315209

Matrix: Water

Associated Lab Samples: 60249713001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.545 ± 0.365 (0.699) C:77% T:82%	pCi/L	08/11/17 15:20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249713

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60249713001	BAA-7-072717	EPA 200.7	487830	EPA 200.7	487911
60249713001	BAA-7-072717	EPA 200.8	487637	EPA 200.8	487864
60249713001	BAA-7-072717	EPA 245.1	490179	EPA 245.1	490214
60249713001	BAA-7-072717	EPA 903.1	267153		
60249713001	BAA-7-072717	EPA 904.0	267154		
60249713001	BAA-7-072717	Total Radium Calculation	268953		
60249713001	BAA-7-072717	SM 2540C	488160		
60249713001	BAA-7-072717	SM 4500-H+B	487921		
60249713001	BAA-7-072717	EPA 300.0	488540		
60249713001	BAA-7-072717	EPA 300.0	488592		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60249713
Barcode
60249713

Client Name: Westar Energy

Courier: FedEx [] UPS [] VIA [x] Clay [] PEX [] ECI [] Pace [] Xroads [] Client [] Other []

Tracking #: Pace Shipping Label Used? Yes [] No [x]

Custody Seal on Cooler/Box Present: Yes [x] No [] Seals intact: Yes [x] No []

Packing Material: Bubble Wrap [] Bubble Bags [] Foam [] None [x] Other []

Thermometer Used: T-266 [x] T-239 [] Type of Ice: Wet [x] Blue [] None []

Cooler Temperature (°C): As-read 1.4 Corr. Factor 0.0 CF +0.3 Corrected 1.4

Date and initials of person examining contents: 7/29/17

Temperature should be above freezing to 6°C

Table with 3 columns: Question, Yes/No/N/A checkboxes, and handwritten notes. Rows include Chain of Custody present, Samples arrived within holding time, Short Hold Time analyses, Rush Turn Around Time requested, Sufficient volume, Correct containers used, Pace containers used, Containers intact, Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?, Filtered volume received for dissolved tests?, Sample labels match COC: Date / time / ID / analyses, Samples contain multiple phases? Matrix: WT, Containers requiring pH preservation in compliance?, Cyanide water sample checks: N/A, Lead acetate strip turns dark? (Record only), Potassium iodide test strip turns blue/purple? (Preserve), Trip Blank present, Headspace in VOA vials (>6mm), Samples from USDA Regulated Area: State, Additional labels attached to 5035A / TX1005 vials in the field?

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: [Signature] Date: 7/28/17



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: <u>1</u> of <u>1</u>	
Company: WESTAR ENERGY		Report To: Brandon Griffin		Attention: Jared Morrison		REGULATORY AGENCY	
Address: 818 Kansas Ave Topeka, KS 66612		Copy To: Jared Morrison, Heath Horny		Company Name: WESTAR ENERGY			
Email To: brandon.l.griffin@westarenergy.com		Purchase Order No.:		Address: SEE SECTION A		Site Location: KS	
Phone: (785) 575-8135 Fax:		Project Name: JEC CCR Groundwater		Pace Quote Reference:			
Requested Due Date/TAT: 7 DAY		Project Number:		Pace Project Manager: Heather Wilson, 913-563-1407			
				Pace Profile #: 9657, 1			

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	200.7 Total Metals*	200.8 Total Metals**					245.1 Total Mercury	300.0 Cl, F, SO ₄	4500 H+B	2540C TDS	Radium 226	Radium 228
					DATE	TIME	DATE	TIME																						
1	BAA-7-072717		WT 6					6/27 1331		4 1 3																	60249713	IBPIN 3BPIN 20 091		
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*200.7 Total Metals: Ba, Be, B, Ca, Cr, Pb, Li	Bry / Westar	7/27/17	1600	Pumpase	7/28/17	0800	1.4	f	y	x
**200.8 Total Metals: Co, As, Se, Mo, Cd, Sb, Tl										

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Brandon Griffin					
SIGNATURE OF SAMPLER:					
DATE Signed (MM/DD/YY): 07/27/17					

Page 28 of 30

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody



Workorder: 60249713

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 7/28/2017 Results Requested By: 8/21/2017

Report To	Subcontract To	Requested Analysis
-----------	----------------	--------------------

Heather Wilson
 Pace Analytical Kansas
 9608 Loiret Blvd.
 Lenexa, KS 66219
 Phone 1(913)563-1407

Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2,3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

Radium-228
Radium-226 & Total Radium

WIO#: 30225845

30225845

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				HNO3	Radium-228	Radium-226 & Total Radium	LAB USE ONLY
1	BAA-7-072717	PS	7/27/2017 13:31	60249713001	Water	1					X	X	001
2													
3													
4													
5													

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1		7/26/17 17:00		8/11/17 10:55	
2					
3					

Cooler Temperature on Receipt N/A °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30225845

Pace Analytical

Client Name: PACE, KS Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 6000

Label ZH.
LIMS Login AMV

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Thermometer Used _____ Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and initials of person examining contents: ZH 8/11/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			6.
-Includes date/time/ID Matrix: <u>AST</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>ZH</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>ZH</u> Date: <u>8/11/17</u>

Client Notification/ Resolution: Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 1-10
August 2017 Sampling Event
Laboratory Analytical Report

August 23, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60249985

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 02, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60249985001	BAA-7-080117	Water	08/01/17 08:08	08/02/17 08:55
60249985002	DUP-080117	Water	08/01/17 06:00	08/02/17 08:55

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60249985001	BAA-7-080117	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	NSM	1	PASI-K
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		60249985002	DUP-080117	EPA 200.7	SMW
EPA 200.8	JGP			7	PASI-K
EPA 245.1	NSM			1	PASI-K
EPA 903.1	KAC			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	CMC			1	PASI-PA
SM 2540C	JSS			1	PASI-K
SM 4500-H+B	HMM			1	PASI-K
EPA 300.0	OL			3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 488235

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60249958001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1999072)
 - Calcium

Additional Comments:

Analyte Comments:

QC Batch: 488235

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- BAA-7-080117 (Lab ID: 60249985001)
 - Beryllium, Total Recoverable
 - Chromium, Total Recoverable
 - Lithium
- DUP-080117 (Lab ID: 60249985002)
 - Beryllium, Total Recoverable
 - Chromium, Total Recoverable
 - Lithium

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 490179

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60249708001,60249708002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2006567)
 - Mercury
- MS (Lab ID: 2006569)
 - Mercury
- MSD (Lab ID: 2006568)
 - Mercury

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-080117 (Lab ID: 60249985001)
- DUP-080117 (Lab ID: 60249985002)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: August 23, 2017

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Sample: BAA-7-080117		Lab ID: 60249985001	Collected: 08/01/17 08:08	Received: 08/02/17 08:55	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.041	mg/L	0.010	2	08/03/17 09:59	08/22/17 16:14	7440-39-3	
Beryllium, Total Recoverable	<0.0020	mg/L	0.0020	2	08/03/17 09:59	08/22/17 16:14	7440-41-7	D3
Boron, Total Recoverable	1.2	mg/L	0.10	1	08/03/17 09:59	08/13/17 15:59	7440-42-8	
Calcium, Total Recoverable	241	mg/L	0.20	2	08/03/17 09:59	08/22/17 16:14	7440-70-2	
Chromium, Total Recoverable	<0.010	mg/L	0.010	2	08/03/17 09:59	08/22/17 16:14	7440-47-3	D3
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/03/17 09:59	08/13/17 15:59	7439-92-1	
Lithium	<0.020	mg/L	0.020	2	08/03/17 09:59	08/22/17 16:14	7439-93-2	D3
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/03/17 09:59	08/08/17 10:53	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7440-48-4	
Molybdenum, Total Recoverable	0.071	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 10:53	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	08/16/17 19:00	08/17/17 09:49	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1730	mg/L	5.0	1		08/07/17 14:12		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		08/03/17 11:40		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	186	mg/L	20.0	20		08/07/17 00:58	16887-00-6	
Fluoride	0.79	mg/L	0.20	1		08/06/17 00:15	16984-48-8	
Sulfate	893	mg/L	100	100		08/07/17 01:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Sample: DUP-080117		Lab ID: 60249985002	Collected: 08/01/17 06:00	Received: 08/02/17 08:55	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.037	mg/L	0.010	2	08/03/17 09:59	08/22/17 16:16	7440-39-3	
Beryllium, Total Recoverable	<0.0020	mg/L	0.0020	2	08/03/17 09:59	08/22/17 16:16	7440-41-7	D3
Boron, Total Recoverable	1.2	mg/L	0.10	1	08/03/17 09:59	08/13/17 16:02	7440-42-8	
Calcium, Total Recoverable	245	mg/L	0.20	2	08/03/17 09:59	08/22/17 16:16	7440-70-2	
Chromium, Total Recoverable	<0.010	mg/L	0.010	2	08/03/17 09:59	08/22/17 16:16	7440-47-3	D3
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/03/17 09:59	08/13/17 16:02	7439-92-1	
Lithium	<0.020	mg/L	0.020	2	08/03/17 09:59	08/22/17 16:16	7439-93-2	D3
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/03/17 09:59	08/08/17 11:19	7440-43-9	
Cobalt, Total Recoverable	0.0014	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7440-48-4	
Molybdenum, Total Recoverable	0.072	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/03/17 09:59	08/08/17 11:19	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	08/16/17 19:00	08/17/17 09:51	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1820	mg/L	5.0	1		08/07/17 14:13		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		08/03/17 11:36		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	185	mg/L	20.0	20		08/07/17 01:24	16887-00-6	
Fluoride	0.74	mg/L	0.20	1		08/06/17 00:59	16984-48-8	
Sulfate	909	mg/L	100	100		08/07/17 01:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 490179 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 2006565 Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	08/17/17 09:18	

LABORATORY CONTROL SAMPLE: 2006566

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0052	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2006567 2006568

Parameter	Units	60249708001		60249708002		60249708003		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.000024	.005	.005	0.0027	0.0027	54	54	70-130	1	20 M1

MATRIX SPIKE SAMPLE: 2006569

Parameter	Units	60249708002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000024	.005	0.0025	50	70-130	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 488235 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 1999070 Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/13/17 15:44	
Beryllium	mg/L	<0.0010	0.0010	08/13/17 15:44	
Boron	mg/L	<0.10	0.10	08/13/17 15:44	
Calcium	mg/L	<0.10	0.10	08/13/17 15:44	
Chromium	mg/L	<0.0050	0.0050	08/13/17 15:44	
Lead	mg/L	<0.0050	0.0050	08/13/17 15:44	
Lithium	mg/L	<0.010	0.010	08/13/17 15:44	

LABORATORY CONTROL SAMPLE: 1999071

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.97	97	85-115	
Beryllium	mg/L	1	1.1	107	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.8	98	85-115	
Chromium	mg/L	1	1.0	100	85-115	
Lead	mg/L	1	1.1	106	85-115	
Lithium	mg/L	1	1.0	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1999072 1999073

Parameter	Units	60249985001		1999073		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	0.066	1	1	1.1	1.1	103	70-130	1	20	
Beryllium	mg/L	<0.0020	1	1	1.1	1.0	105	70-130	1	20	
Boron	mg/L	3.0	1	1	3.8	3.8	82	70-130	0	20	
Calcium	mg/L	141	10	10	154	151	133	70-130	2	20 M1	
Chromium	mg/L	<0.0050	1	1	1.1	1.0	110	70-130	8	20	
Lead	mg/L	<0.0050	1	1	0.96	0.94	96	70-130	1	20	
Lithium	mg/L	<0.020	1	1	1.1	1.0	105	70-130	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 488237 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 1999079 Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/08/17 10:40	
Arsenic	mg/L	<0.0010	0.0010	08/08/17 10:40	
Cadmium	mg/L	<0.00050	0.00050	08/08/17 10:40	
Cobalt	mg/L	<0.0010	0.0010	08/08/17 10:40	
Molybdenum	mg/L	<0.0010	0.0010	08/08/17 10:40	
Selenium	mg/L	<0.0010	0.0010	08/08/17 10:40	
Thallium	mg/L	<0.0010	0.0010	08/08/17 10:40	

LABORATORY CONTROL SAMPLE: 1999080

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	100	85-115	
Arsenic	mg/L	.04	0.040	99	85-115	
Cadmium	mg/L	.04	0.040	99	85-115	
Cobalt	mg/L	.04	0.040	100	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.038	95	85-115	
Thallium	mg/L	.04	0.039	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1999081 1999082

Parameter	Units	60249985001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony	mg/L	<0.0010	.04	.04	0.039	0.038	96	96	70-130	0	20		
Arsenic	mg/L	<0.0010	.04	.04	0.041	0.041	100	100	70-130	0	20		
Cadmium	mg/L	<0.00050	.04	.04	0.036	0.036	90	89	70-130	0	20		
Cobalt	mg/L	0.0013	.04	.04	0.039	0.039	95	94	70-130	1	20		
Molybdenum	mg/L	0.071	.04	.04	0.11	0.11	110	110	70-130	0	20		
Selenium	mg/L	<0.0010	.04	.04	0.036	0.037	90	91	70-130	1	20		
Thallium	mg/L	<0.0010	.04	.04	0.043	0.043	106	106	70-130	0	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 488701

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 2000988

Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/07/17 14:08	

LABORATORY CONTROL SAMPLE: 2000989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 2000990

Parameter	Units	60250086001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	469	480	2	10	

SAMPLE DUPLICATE: 2000991

Parameter	Units	60250164001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	831	825	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 488220 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60249985001, 60249985002

SAMPLE DUPLICATE: 1999035

Parameter	Units	60249711001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.5	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 488540

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 2000546

Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	08/05/17 17:38	

LABORATORY CONTROL SAMPLE: 2000547

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.6	103	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Sample: BAA-7-080117 **Lab ID: 60249985001** Collected: 08/01/17 08:08 Received: 08/02/17 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.674 ± 0.493 (0.551) C:NA T:82%	pCi/L	08/15/17 11:17	13982-63-3	
Radium-228	EPA 904.0	0.481 ± 0.391 (0.786) C:76% T:90%	pCi/L	08/15/17 11:55	15262-20-1	
Total Radium	Total Radium Calculation	1.16 ± 0.884 (1.34)	pCi/L	08/23/17 11:09	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Sample: DUP-080117 **Lab ID: 60249985002** Collected: 08/01/17 06:00 Received: 08/02/17 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.54 ± 1.06 (1.13) C:NA T:82%	pCi/L	08/15/17 11:34	13982-63-3	
Radium-228	EPA 904.0	0.927 ± 0.515 (0.946) C:79% T:85%	pCi/L	08/15/17 11:41	15262-20-1	
Total Radium	Total Radium Calculation	2.47 ± 1.58 (2.08)	pCi/L	08/23/17 11:20	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 267554

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 1317175

Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.831 ± 0.415 (0.725) C:76% T:86%	pCi/L	08/15/17 11:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

QC Batch: 267553

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60249985001, 60249985002

METHOD BLANK: 1317174

Matrix: Water

Associated Lab Samples: 60249985001, 60249985002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0658 ± 0.300 (0.611) C:NA T:100%	pCi/L	08/15/17 11:17	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60249985

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60249985001	BAA-7-080117	EPA 200.7	488235	EPA 200.7	488322
60249985002	DUP-080117	EPA 200.7	488235	EPA 200.7	488322
60249985001	BAA-7-080117	EPA 200.8	488237	EPA 200.8	488321
60249985002	DUP-080117	EPA 200.8	488237	EPA 200.8	488321
60249985001	BAA-7-080117	EPA 245.1	490179	EPA 245.1	490214
60249985002	DUP-080117	EPA 245.1	490179	EPA 245.1	490214
60249985001	BAA-7-080117	EPA 903.1	267553		
60249985002	DUP-080117	EPA 903.1	267553		
60249985001	BAA-7-080117	EPA 904.0	267554		
60249985002	DUP-080117	EPA 904.0	267554		
60249985001	BAA-7-080117	Total Radium Calculation	269241		
60249985002	DUP-080117	Total Radium Calculation	269244		
60249985001	BAA-7-080117	SM 2540C	488701		
60249985002	DUP-080117	SM 2540C	488701		
60249985001	BAA-7-080117	SM 4500-H+B	488220		
60249985002	DUP-080117	SM 4500-H+B	488220		
60249985001	BAA-7-080117	EPA 300.0	488540		
60249985001	BAA-7-080117	EPA 300.0	488592		
60249985002	DUP-080117	EPA 300.0	488540		
60249985002	DUP-080117	EPA 300.0	488592		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60249985
60249985

Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 5.0 Corr. Factor 0.0 CF +0.3 Corrected 5.0

Date and initials of person examining contents: 8/21/17 T17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>HNO3</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>One HNO3 container - rec'd for Pip - 080117 w/ lid having been opened, but not filled w/ sample volume</u>
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

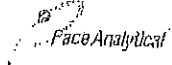
Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amu Date: 8/21/17

Sample Condition Upon Receipt Pittsburgh



Client Name: DALE, KS

Project # 30226178

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 728565951421

Label CAF
LIMS Login

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Thermometer Used _____ Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 8/3/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume: <u>ZH</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. <u>SAMPLE 002 IS LOW VOLUME</u>
Correct Containers Used: <u>8/3/17</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. <u>PHCZ</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ZH</u> Date/Time of preservation: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16.
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>ZH</u> Date: <u>8/3/17</u>

Client Notification/ Resolution:
Person Contacted: Heather Wilson Date/Time: 8/3/17 Contacted By: CAF
Comments/ Resolution: Sample 2 has only (1) 1-liter.

No additional volume, analyze using low volume

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM reviews is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

August 31, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60250361

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 08, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60250361001	BAA-7-080717	Water	08/07/17 11:33	08/08/17 07:20

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60250361001	BAA-7-080717	EPA 200.7	SMW	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	NSM	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	JMC1	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 490028

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60250784001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2005870)
 - Calcium
- MSD (Lab ID: 2005871)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-080717 (Lab ID: 60250361001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: August 31, 2017

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Sample: BAA-7-080717		Lab ID: 60250361001	Collected: 08/07/17 11:33	Received: 08/08/17 07:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.039	mg/L	0.0050	1	08/16/17 09:53	08/17/17 17:27	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/16/17 09:53	08/17/17 17:27	7440-41-7	
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/16/17 09:53	08/17/17 17:27	7440-42-8	
Calcium, Total Recoverable	223	mg/L	0.10	1	08/16/17 09:53	08/17/17 17:27	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/16/17 09:53	08/17/17 17:27	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/16/17 09:53	08/17/17 17:27	7439-92-1	
Lithium	0.014	mg/L	0.010	1	08/16/17 09:53	08/17/17 17:27	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7440-38-2	
Cadmium, Total Recoverable	<0.0050	mg/L	0.00050	1	08/09/17 17:03	08/10/17 16:17	7440-43-9	
Cobalt, Total Recoverable	0.0025	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7440-48-4	
Molybdenum, Total Recoverable	0.076	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/09/17 17:03	08/10/17 16:17	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	08/29/17 11:40	08/29/17 16:15	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1960	mg/L	5.0	1		08/11/17 09:34		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		08/09/17 09:59		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	187	mg/L	25.0	25		08/30/17 16:02	16887-00-6	
Fluoride	0.86	mg/L	0.20	1		08/30/17 00:02	16984-48-8	
Sulfate	923	mg/L	200	200		08/30/17 16:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60250361

QC Batch: 491873 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
Associated Lab Samples: 60250361001

METHOD BLANK: 2013080 Matrix: Water
Associated Lab Samples: 60250361001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	08/29/17 16:08	

LABORATORY CONTROL SAMPLE: 2013081

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0051	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2013082 2013083

Parameter	Units	2013082		2013083		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60251349001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	.005	.005	0.0051	0.0052	102	103	70-130	2	20

MATRIX SPIKE SAMPLE: 2013084

Parameter	Units	60251349002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0052	104	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60250361

QC Batch: 490028 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60250361001

METHOD BLANK: 2005868 Matrix: Water
Associated Lab Samples: 60250361001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/17/17 17:13	
Beryllium	mg/L	<0.0010	0.0010	08/17/17 17:13	
Boron	mg/L	<0.10	0.10	08/17/17 17:13	
Calcium	mg/L	<0.10	0.10	08/17/17 17:13	
Chromium	mg/L	<0.0050	0.0050	08/17/17 17:13	
Lead	mg/L	<0.0050	0.0050	08/17/17 17:13	
Lithium	mg/L	<0.010	0.010	08/17/17 17:13	

LABORATORY CONTROL SAMPLE: 2005869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	100	85-115	
Beryllium	mg/L	1	1.0	102	85-115	
Boron	mg/L	1	1.0	101	85-115	
Calcium	mg/L	10	9.7	97	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	1.0	102	85-115	
Lithium	mg/L	1	1.0	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2005870 2005871

Parameter	Units	60250784001		2005871		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	0.12	1	1	1.1	100	103	70-130	2	20	
Beryllium	mg/L	<0.00016	1	1	0.99	99	101	70-130	2	20	
Boron	mg/L	1.9	1	1	2.9	98	95	70-130	1	20	
Calcium	mg/L	532	10	10	524	-81	-160	70-130	2	20 M1	
Chromium	mg/L	<0.0014	1	1	1.0	101	103	70-130	2	20	
Lead	mg/L	0.0050J	1	1	0.90	89	90	70-130	0	20	
Lithium	mg/L	0.43	1	1	1.6	112	113	70-130	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 489217 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60250361001

METHOD BLANK: 2002653 Matrix: Water

Associated Lab Samples: 60250361001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/10/17 14:24	
Arsenic	mg/L	<0.0010	0.0010	08/10/17 14:24	
Cadmium	mg/L	<0.00050	0.00050	08/10/17 14:24	
Cobalt	mg/L	<0.0010	0.0010	08/10/17 14:24	
Molybdenum	mg/L	<0.0010	0.0010	08/10/17 14:24	
Selenium	mg/L	<0.0010	0.0010	08/10/17 14:24	
Thallium	mg/L	<0.0010	0.0010	08/10/17 14:24	

LABORATORY CONTROL SAMPLE: 2002654

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	100	85-115	
Arsenic	mg/L	.04	0.040	101	85-115	
Cadmium	mg/L	.04	0.039	99	85-115	
Cobalt	mg/L	.04	0.041	101	85-115	
Molybdenum	mg/L	.04	0.041	104	85-115	
Selenium	mg/L	.04	0.038	95	85-115	
Thallium	mg/L	.04	0.041	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2002655 2002656

Parameter	Units	2002655		2002656		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		60250510001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	.04	.04	0.039	0.040	98	99	70-130	2	20	
Arsenic	mg/L	11.4 ug/L	.04	.04	0.052	0.053	102	104	70-130	2	20	
Cadmium	mg/L	ND	.04	.04	0.039	0.039	98	98	70-130	0	20	
Cobalt	mg/L	ND	.04	.04	0.043	0.043	100	100	70-130	0	20	
Molybdenum	mg/L	ND	.04	.04	0.042	0.042	104	104	70-130	0	20	
Selenium	mg/L	ND	.04	.04	0.040	0.040	98	98	70-130	1	20	
Thallium	mg/L	ND	.04	.04	0.039	0.040	96	98	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 489402

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60250361001

METHOD BLANK: 2003281

Matrix: Water

Associated Lab Samples: 60250361001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/11/17 09:31	

LABORATORY CONTROL SAMPLE: 2003282

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 2003283

Parameter	Units	60250361001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1960	2040	4	10	

SAMPLE DUPLICATE: 2003284

Parameter	Units	60250614001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	459	454	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 489010 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60250361001

SAMPLE DUPLICATE: 2001784

Parameter	Units	60250317001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.5	6.5	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 491643 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60250361001

METHOD BLANK: 2012453 Matrix: Water

Associated Lab Samples: 60250361001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	08/29/17 22:16	
Fluoride	mg/L	<0.20	0.20	08/29/17 22:16	
Sulfate	mg/L	<1.0	1.0	08/29/17 22:16	

LABORATORY CONTROL SAMPLE: 2012454

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2012455 2012456

Parameter	Units	60250360001		MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	66.0	25	25	95.2	95.1	117	116	80-120	0	15			
Fluoride	mg/L	0.81	2.5	2.5	3.3	3.4	100	103	80-120	2	15			
Sulfate	mg/L	1380	1250	1250	2610	2610	99	99	80-120	0	15			

MATRIX SPIKE SAMPLE: 2012457

Parameter	Units	2059121002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	2.5	2.8	112	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Sample: BAA-7-080717 **Lab ID: 60250361001** Collected: 08/07/17 11:33 Received: 08/08/17 07:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.349 ± 0.456 (0.752) C:NA T:98%	pCi/L	08/19/17 13:08	13982-63-3	
Radium-228	EPA 904.0	0.737 ± 0.504 (0.986) C:81% T:87%	pCi/L	08/21/17 13:27	15262-20-1	
Total Radium	Total Radium Calculation	1.09 ± 0.960 (1.74)	pCi/L	08/23/17 15:26	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 267988

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60250361001

METHOD BLANK: 1318833

Matrix: Water

Associated Lab Samples: 60250361001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.617 ± 0.409 (0.788) C:79% T:80%	pCi/L	08/21/17 11:40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

QC Batch: 267982

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60250361001

METHOD BLANK: 1318829

Matrix: Water

Associated Lab Samples: 60250361001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0630 ± 0.371 (0.757) C:NA T:107%	pCi/L	08/19/17 12:14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60250361

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60250361001	BAA-7-080717	EPA 200.7	490028	EPA 200.7	490117
60250361001	BAA-7-080717	EPA 200.8	489217	EPA 200.8	489263
60250361001	BAA-7-080717	EPA 245.1	491873	EPA 245.1	492022
60250361001	BAA-7-080717	EPA 903.1	267982		
60250361001	BAA-7-080717	EPA 904.0	267988		
60250361001	BAA-7-080717	Total Radium Calculation	269344		
60250361001	BAA-7-080717	SM 2540C	489402		
60250361001	BAA-7-080717	SM 4500-H+B	489010		
60250361001	BAA-7-080717	EPA 300.0	491643		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60250361
60250361

Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 0.1 Corr. Factor CF 0.0 CF +0.3 Corrected 0.1

Date and initials of person examining contents:
pv 8/8/17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>excessive volume; entire IL received</u>
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>for in-house metals analyses.</u>
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>- not excessive volume</u>
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>AMW 8/8/17</u>
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input checked="" type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW Date: 8/8/17

Chain of Custody




Workorder: 60250361

Workorder Name: JEC CCR GROUNDWATER

Owner Received Date: 8/8/2017

Results Requested By: 8/30/2017

Report To		Subcontract To					Requested Analysis																	
Heather Wilson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1407		Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600					<div style="border: 1px solid black; padding: 5px; display: inline-block;"> WO# : 30226672  30226672 </div>																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3	Preserved Containers				Radium-228	Radium-226 & Total Radium	LAB USE ONLY											
1	BAA-7-080717	PS	8/7/2017 11:33	60250361001	Water	2						X	X											001
2																								
3																								
4																								
5																								
Transfers												Comments												
Released By	Date/Time	Received By	Date/Time																					
<i>[Signature]</i>	8/8/17	<i>[Signature]</i>	8/9/17 09:55																					
Cooler Temperature on Receipt <i>N/A</i> °C		Custody Seal Y or N		Received on Ice Y or N		Samples Intact Y or N																		

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Pittsburgh

30226672



Client Name: PACE, KS

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 728565954199

Label	<u>COX</u>
LIMS Login	<u>AML</u>

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and initials of person examining contents: ZH 8/9/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	/			5.
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used: -Pace Containers Used:	/			10.
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15. <u>Pit 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				
				Initial when completed: <u>ZH</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>ZH</u> Date: <u>8/9/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 11, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60251121

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 17, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60251121001	BAA-7-081617	Water	08/16/17 11:47	08/17/17 07:50

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60251121001	BAA-7-081617	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	NSM	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-081617 (Lab ID: 60251121001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: September 11, 2017

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 493302

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60251775001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2018407)
- Sulfate

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Sample: BAA-7-081617	Lab ID: 60251121001	Collected: 08/16/17 11:47	Received: 08/17/17 07:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.034	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:25	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/25/17 12:14	08/28/17 17:25	7440-41-7	
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/25/17 12:14	08/28/17 17:25	7440-42-8	
Calcium, Total Recoverable	234	mg/L	0.10	1	08/25/17 12:14	08/28/17 17:25	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:25	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:25	7439-92-1	
Lithium	0.015	mg/L	0.010	1	08/25/17 12:14	08/28/17 17:25	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/23/17 15:28	08/28/17 17:12	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7440-48-4	
Molybdenum, Total Recoverable	0.071	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/23/17 15:28	08/28/17 17:12	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/06/17 16:45	09/07/17 13:10	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1840	mg/L	5.0	1		08/18/17 09:10		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3	Std. Units	0.10	1		08/18/17 12:49		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	201	mg/L	20.0	20		09/08/17 10:21	16887-00-6	
Fluoride	0.85	mg/L	0.20	1		09/06/17 19:53	16984-48-8	
Sulfate	950	mg/L	100	100		09/08/17 11:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 492993 Analysis Method: EPA 245.1
 QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury
 Associated Lab Samples: 60251121001

METHOD BLANK: 2017225 Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	09/07/17 12:52	

LABORATORY CONTROL SAMPLE: 2017226

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0050	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2017227 2017228

Parameter	Units	2017227		2017228		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60251119001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	<0.00020	.005	.005	0.0049	0.0048	97	95	70-130	2	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 491466 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60251121001

METHOD BLANK: 2011490 Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/28/17 17:03	
Beryllium	mg/L	<0.0010	0.0010	08/28/17 17:03	
Boron	mg/L	<0.10	0.10	08/28/17 17:03	
Calcium	mg/L	<0.10	0.10	08/28/17 17:03	
Chromium	mg/L	<0.0050	0.0050	08/28/17 17:03	
Lead	mg/L	<0.0050	0.0050	08/28/17 17:03	
Lithium	mg/L	<0.010	0.010	08/28/17 17:03	

LABORATORY CONTROL SAMPLE: 2011491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	85-115	
Beryllium	mg/L	1	1.0	100	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.7	97	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	1.0	105	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2011492 2011493

Parameter	Units	60250872002		2011493		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	244 ug/L	1	1	1.3	1.3	106	102	70-130	3	20
Beryllium	mg/L	ND	1	1	1.0	1.0	103	100	70-130	3	20
Boron	mg/L	484 ug/L	1	1	1.5	1.5	104	100	70-130	3	20
Calcium	mg/L	54900 ug/L	10	10	67.7	65.9	127	110	70-130	3	20
Chromium	mg/L	ND	1	1	1.0	0.99	102	98	70-130	4	20
Lead	mg/L	ND	1	1	1.0	1.0	103	100	70-130	3	20
Lithium	mg/L	21.7 ug/L	1	1	1.1	1.0	103	101	70-130	2	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251121

QC Batch: 491169 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60251121001

METHOD BLANK: 2010358 Matrix: Water
Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/28/17 15:43	
Arsenic	mg/L	<0.0010	0.0010	08/28/17 15:43	
Cadmium	mg/L	<0.00050	0.00050	08/28/17 15:43	
Cobalt	mg/L	<0.0010	0.0010	08/28/17 15:43	
Molybdenum	mg/L	<0.0010	0.0010	08/28/17 15:43	
Selenium	mg/L	<0.0010	0.0010	08/28/17 15:43	
Thallium	mg/L	<0.0010	0.0010	08/28/17 15:43	

LABORATORY CONTROL SAMPLE: 2010359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	100	85-115	
Arsenic	mg/L	.04	0.041	102	85-115	
Cadmium	mg/L	.04	0.040	99	85-115	
Cobalt	mg/L	.04	0.040	101	85-115	
Molybdenum	mg/L	.04	0.040	101	85-115	
Selenium	mg/L	.04	0.039	99	85-115	
Thallium	mg/L	.04	0.040	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2010360 2010361

Parameter	Units	2010360		2010361		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60250784001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	mg/L	<0.00013	.04	.04	0.037	0.036	91	89	70-130	3	20
Arsenic	mg/L	0.00092J	.04	.04	0.036	0.036	88	87	70-130	1	20
Cadmium	mg/L	<0.000089	.04	.04	0.032	0.031	80	79	70-130	2	20
Cobalt	mg/L	0.0038J	.04	.04	0.039	0.038	87	86	70-130	1	20
Molybdenum	mg/L	0.0048J	.04	.04	0.048	0.048	109	107	70-130	1	20
Selenium	mg/L	<0.00043	.04	.04	0.030	0.031	75	77	70-130	4	20
Thallium	mg/L	<0.00018	.04	.04	0.033	0.033	83	81	70-130	2	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 490385

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60251121001

METHOD BLANK: 2007444

Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/18/17 08:57	

LABORATORY CONTROL SAMPLE: 2007445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	988	99	80-120	

SAMPLE DUPLICATE: 2007446

Parameter	Units	60251157001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	621	599	4	10	

SAMPLE DUPLICATE: 2007447

Parameter	Units	60251157015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	371	375	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 490368 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60251121001

SAMPLE DUPLICATE: 2007330

Parameter	Units	60251056001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 492909

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60251121001

METHOD BLANK: 2016940

Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	09/06/17 18:51	

LABORATORY CONTROL SAMPLE: 2016941

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE SAMPLE: 2016944

Parameter	Units	60251775002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.52	2.5	3.1	105	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 493302

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60251121001

METHOD BLANK: 2018405

Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/08/17 08:52	
Sulfate	mg/L	<1.0	1.0	09/08/17 08:52	

LABORATORY CONTROL SAMPLE: 2018406

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2018407 2018408

Parameter	Units	60251775001		2018407		2018408		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	31.7	50	82.5	81.3	102	99	80-120	2	15	
Sulfate	mg/L	142	50	203	197	121	110	80-120	3	15	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Sample: BAA-7-081617 **Lab ID: 60251121001** Collected: 08/16/17 11:47 Received: 08/17/17 07:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.126 ± 0.463 (0.889) C:NA T:91%	pCi/L	08/29/17 20:47	13982-63-3	
Radium-228	EPA 904.0	0.423 ± 0.366 (0.736) C:76% T:79%	pCi/L	08/31/17 16:19	15262-20-1	
Total Radium	Total Radium Calculation	0.549 ± 0.829 (1.63)	pCi/L	09/05/17 12:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 269145

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60251121001

METHOD BLANK: 1324788

Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.560 ± 0.480 (0.650) C:NA T:80%	pCi/L	08/29/17 20:30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

QC Batch: 269257	Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0	Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60251121001	

METHOD BLANK: 1325053 Matrix: Water

Associated Lab Samples: 60251121001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.427 ± 0.337 (0.668) C:79% T:86%	pCi/L	08/31/17 16:17	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60251121001	BAA-7-081617	EPA 200.7	491466	EPA 200.7	491538
60251121001	BAA-7-081617	EPA 200.8	491169	EPA 200.8	491198
60251121001	BAA-7-081617	EPA 245.1	492993	EPA 245.1	493149
60251121001	BAA-7-081617	EPA 903.1	269145		
60251121001	BAA-7-081617	EPA 904.0	269257		
60251121001	BAA-7-081617	Total Radium Calculation	270486		
60251121001	BAA-7-081617	SM 2540C	490385		
60251121001	BAA-7-081617	SM 4500-H+B	490368		
60251121001	BAA-7-081617	EPA 300.0	492909		
60251121001	BAA-7-081617	EPA 300.0	493302		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60251121
60251121

Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 30 Corr. Factor 0.3 CF 0.0 / CF +0.3 Corrected 3.0

Date and initials of person examining contents:

2/8/17/17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>DM</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input checked="" type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

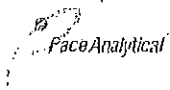
Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW

Date: 8/17/17

Sample Condition Upon Receipt Pittsburgh



Client Name: PACE, KS

Project # 30227611

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 728565958996

Label	<u>AML</u>
LIMS Login	<u>AML</u>

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 8/18/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Organic Samples checked for dechlorination:			/	13.
Filtered volume received for Dissolved tests			/	14.
All containers have been checked for preservation.	/			15.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			<u>PITCZ</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ZH</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	16.
Trip Blank Present:			/	17.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.6 mrem/hr		/		Initial when completed: <u>ZH</u> Date: <u>8/18/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS, The review is in the Status section of the Workorder Edit Screen.

September 18, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60251633

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60251633001	BAA-7-082317	Water	08/23/17 09:44	08/24/17 07:09

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60251633001	BAA-7-082317	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	SMW	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-082317 (Lab ID: 60251633001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: September 18, 2017

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Sample: BAA-7-082317		Lab ID: 60251633001		Collected: 08/23/17 09:44		Received: 08/24/17 07:09		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Total Recoverable	0.033	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:28	7440-39-3		
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/25/17 12:14	08/28/17 17:28	7440-41-7		
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/25/17 12:14	08/28/17 17:28	7440-42-8		
Calcium, Total Recoverable	230	mg/L	0.10	1	08/25/17 12:14	08/28/17 17:28	7440-70-2		
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:28	7440-47-3		
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/25/17 12:14	08/28/17 17:28	7439-92-1		
Lithium	0.012	mg/L	0.010	1	08/25/17 12:14	08/28/17 17:28	7439-93-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7440-36-0		
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7440-38-2		
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/26/17 10:43	08/28/17 17:38	7440-43-9		
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7440-48-4		
Molybdenum, Total Recoverable	0.074	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7439-98-7		
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7782-49-2		
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/26/17 10:43	08/28/17 17:38	7440-28-0		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	<0.00020	mg/L	0.00020	1	09/13/17 16:05	09/14/17 12:12	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1850	mg/L	5.0	1		08/26/17 15:34			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.3	Std. Units	0.10	1		08/26/17 14:43		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	199	mg/L	20.0	20		09/12/17 18:37	16887-00-6		
Fluoride	0.78	mg/L	0.20	1		09/12/17 18:22	16984-48-8		
Sulfate	926	mg/L	100	100		09/13/17 12:42	14808-79-8		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 494071	Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1	Analysis Description: 245.1 Mercury
Associated Lab Samples: 60251633001	

METHOD BLANK: 2021073 Matrix: Water
Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	09/14/17 12:07	

LABORATORY CONTROL SAMPLE: 2021074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0051	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2021075 2021076

Parameter	Units	60251633001		2021075		2021076		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.00020	.005	.005	0.0042	0.0044	85	88	70-130	4	20

MATRIX SPIKE SAMPLE: 2021077

Parameter	Units	60252592002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0049	98	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251633

QC Batch: 491466 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60251633001

METHOD BLANK: 2011490 Matrix: Water
Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/28/17 17:03	
Beryllium	mg/L	<0.0010	0.0010	08/28/17 17:03	
Boron	mg/L	<0.10	0.10	08/28/17 17:03	
Calcium	mg/L	<0.10	0.10	08/28/17 17:03	
Chromium	mg/L	<0.0050	0.0050	08/28/17 17:03	
Lead	mg/L	<0.0050	0.0050	08/28/17 17:03	
Lithium	mg/L	<0.010	0.010	08/28/17 17:03	

LABORATORY CONTROL SAMPLE: 2011491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	85-115	
Beryllium	mg/L	1	1.0	100	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.7	97	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	1.0	105	85-115	
Lithium	mg/L	1	1.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2011492 2011493

Parameter	Units	60250872002		2011493		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Barium	mg/L	244 ug/L	1	1	1.3	1.3	106	102	70-130	3	20		
Beryllium	mg/L	ND	1	1	1.0	1.0	103	100	70-130	3	20		
Boron	mg/L	484 ug/L	1	1	1.5	1.5	104	100	70-130	3	20		
Calcium	mg/L	54900 ug/L	10	10	67.7	65.9	127	110	70-130	3	20		
Chromium	mg/L	ND	1	1	1.0	0.99	102	98	70-130	4	20		
Lead	mg/L	ND	1	1	1.0	1.0	103	100	70-130	3	20		
Lithium	mg/L	21.7 ug/L	1	1	1.1	1.0	103	101	70-130	2	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251633

QC Batch: 491610 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60251633001

METHOD BLANK: 2012290 Matrix: Water
Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	08/28/17 17:32	
Arsenic	mg/L	<0.0010	0.0010	08/28/17 17:32	
Cadmium	mg/L	<0.00050	0.00050	08/28/17 17:32	
Cobalt	mg/L	<0.0010	0.0010	08/28/17 17:32	
Molybdenum	mg/L	<0.0010	0.0010	08/28/17 17:32	
Selenium	mg/L	<0.0010	0.0010	08/28/17 17:32	
Thallium	mg/L	<0.0010	0.0010	08/28/17 17:32	

LABORATORY CONTROL SAMPLE: 2012291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.038	96	85-115	
Arsenic	mg/L	.04	0.039	99	85-115	
Cadmium	mg/L	.04	0.038	96	85-115	
Cobalt	mg/L	.04	0.038	95	85-115	
Molybdenum	mg/L	.04	0.039	96	85-115	
Selenium	mg/L	.04	0.039	98	85-115	
Thallium	mg/L	.04	0.038	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2012292 2012293

Parameter	Units	2012292		2012293		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		60251633001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	mg/L	<0.0010	.04	.04	0.037	0.038	93	94	70-130	1	20
Arsenic	mg/L	<0.0010	.04	.04	0.040	0.040	97	98	70-130	1	20
Cadmium	mg/L	<0.00050	.04	.04	0.035	0.035	86	87	70-130	1	20
Cobalt	mg/L	0.0013	.04	.04	0.037	0.038	90	91	70-130	1	20
Molybdenum	mg/L	0.074	.04	.04	0.12	0.12	108	111	70-130	1	20
Selenium	mg/L	<0.0010	.04	.04	0.037	0.037	91	92	70-130	0	20
Thallium	mg/L	<0.0010	.04	.04	0.035	0.035	88	88	70-130	1	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 491618

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60251633001

METHOD BLANK: 2012388

Matrix: Water

Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/26/17 15:28	

LABORATORY CONTROL SAMPLE: 2012389

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	984	98	80-120	

SAMPLE DUPLICATE: 2012392

Parameter	Units	60251710001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	15700	16000	2	10	

SAMPLE DUPLICATE: 2012393

Parameter	Units	60251710004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	19000	19000	0	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 491501 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60251633001

SAMPLE DUPLICATE: 2011638

Parameter	Units	60251559001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	5.8	5.8	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251633

QC Batch: 493864 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60251633001

METHOD BLANK: 2020308 Matrix: Water
Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/12/17 15:38	
Fluoride	mg/L	<0.20	0.20	09/12/17 15:38	

LABORATORY CONTROL SAMPLE: 2020309

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.3	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2020310 2020311

Parameter	Units	60252175001		2020311		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	254	250	250	514	104	98	80-120	3	15	
Fluoride	mg/L	ND	125	125	129	103	100	80-120	3	15	

MATRIX SPIKE SAMPLE: 2020312

Parameter	Units	60252175002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L		224	250	100	80-120	
Fluoride	mg/L		ND	125	101	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 493957

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60251633001

METHOD BLANK: 2020640

Matrix: Water

Associated Lab Samples: 60251633001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<1.0	1.0	09/13/17 11:43	

LABORATORY CONTROL SAMPLE: 2020641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2020642 2020643

Parameter	Units	60252145005		60252145006		60252145007		60252145008		% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Sulfate	mg/L	38.3	25	25	64.0	63.8	103	102	80-120	0	15	

MATRIX SPIKE SAMPLE: 2020644

Parameter	Units	60252145006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20.1	10	30.8	107	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Sample: BAA-7-082317 **Lab ID: 60251633001** Collected: 08/23/17 09:44 Received: 08/24/17 07:09 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.642 ± 0.503 (0.591) C:NA T:79%	pCi/L	09/05/17 22:30	13982-63-3	
Radium-228	EPA 904.0	0.443 ± 0.439 (0.911) C:77% T:79%	pCi/L	09/07/17 15:58	15262-20-1	
Total Radium	Total Radium Calculation	1.09 ± 0.942 (1.50)	pCi/L	09/10/17 12:52	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 269996

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60251633001

METHOD BLANK: 1328673

Matrix: Water

Associated Lab Samples: 60251633001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.209 ± 0.410 (0.750) C:NA T:87%	pCi/L	09/05/17 21:41	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

QC Batch: 270008

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60251633001

METHOD BLANK: 1328710

Matrix: Water

Associated Lab Samples: 60251633001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.475 ± 0.397 (0.799) C:78% T:78%	pCi/L	09/07/17 15:57	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251633

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60251633001	BAA-7-082317	EPA 200.7	491466	EPA 200.7	491538
60251633001	BAA-7-082317	EPA 200.8	491610	EPA 200.8	491629
60251633001	BAA-7-082317	EPA 245.1	494071	EPA 245.1	494160
60251633001	BAA-7-082317	EPA 903.1	269996		
60251633001	BAA-7-082317	EPA 904.0	270008		
60251633001	BAA-7-082317	Total Radium Calculation	271118		
60251633001	BAA-7-082317	SM 2540C	491618		
60251633001	BAA-7-082317	SM 4500-H+B	491501		
60251633001	BAA-7-082317	EPA 300.0	493864		
60251633001	BAA-7-082317	EPA 300.0	493957		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60251633



Client Name: WStar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 ^{CF 0.0} ^{CF +0.3} T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 1.0 Corr. Factor ^{CF 0.0} ^{CF +0.3} Corrected 1.0

Date and initials of person examining contents:

Temperature should be above freezing to 6°C

8/24/17

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<u>8/24/17</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks:	<input type="checkbox"/> N/A	
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amw

Date: 8/24/17

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: PACE, KS

Project # 0228489

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Label	<u>ZH</u>
LIMS Login	<u>AMV</u>

Tracking #: 778565961987

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
 Temp should be above freezing to 6°C

Date and initials of person examining contents: ZH 8/29/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	/			5.
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used: -Pace Containers Used:	/			10.
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16. <u>PH 2'</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>ZH</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed: <u>ZH</u> Date: <u>8/29/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 21, 2017

Brandon Griffin
Westar Energy
818 S. Kansas Ave
Topeka, KS 66612

RE: Project: JEC CCR GROUNDWATER
Pace Project No.: 60251948

Dear Brandon Griffin:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Heather Wilson
heather.wilson@pacelabs.com
1(913)563-1407
Project Manager

Enclosures

cc: HEATH HORYNA, WESTAR ENERGY
Adam Kneeling, Haley & Aldrich, Inc.
JARED MORRISON, WESTAR ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 15-016-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407

Utah Certification #: KS00021

Kansas Field Laboratory Accreditation: # E-92587

Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251948

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60251948001	BAA-7-082817	Water	08/28/17 11:55	08/29/17 07:05
60251948002	DUP-082817	Water	08/28/17 06:00	08/29/17 07:05

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60251948001	BAA-7-082817	EPA 200.7	TDS	7	PASI-K
		EPA 200.8	JGP	7	PASI-K
		EPA 245.1	JRS	1	PASI-K
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	JSS	1	PASI-K
		SM 4500-H+B	HMM	1	PASI-K
		EPA 300.0	OL	3	PASI-K
		60251948002	DUP-082817	EPA 200.7	TDS
EPA 200.8	JGP			7	PASI-K
EPA 245.1	JRS			1	PASI-K
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	JSS			1	PASI-K
SM 4500-H+B	HMM			1	PASI-K
EPA 300.0	OL			3	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 200.7

Description: 200.7 Metals, Total

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 491981

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60251805001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2013432)
 - Calcium
- MSD (Lab ID: 2013433)
 - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 491980

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60251805002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2013426)
 - Antimony
 - Arsenic
 - Cadmium
 - Cobalt
 - Selenium
- MSD (Lab ID: 2013427)
 - Antimony
 - Arsenic
 - Cadmium
 - Cobalt
 - Selenium

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER
Pace Project No.: 60251948

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: WESTAR ENERGY
Date: September 21, 2017

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 245.1

Description: 245.1 Mercury

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 903.1

Description: 903.1 Radium 226

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 904.0

Description: 904.0 Radium 228

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: SM 4500-H+B

Description: 4500H+ pH, Electrometric

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.

- BAA-7-082817 (Lab ID: 60251948001)
- DUP-082817 (Lab ID: 60251948002)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: WESTAR ENERGY

Date: September 21, 2017

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Sample: BAA-7-082817		Lab ID: 60251948001	Collected: 08/28/17 11:55	Received: 08/29/17 07:05	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.033	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:31	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	08/30/17 14:31	7440-41-7	
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/29/17 12:19	08/30/17 14:31	7440-42-8	
Calcium, Total Recoverable	222	mg/L	0.10	1	08/29/17 12:19	08/30/17 14:31	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:31	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:31	7439-92-1	
Lithium	0.010	mg/L	0.010	1	08/29/17 12:19	08/30/17 14:31	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7440-38-2	
Cadmium, Total Recoverable	<0.0050	mg/L	0.00050	1	08/29/17 12:19	09/05/17 11:55	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7440-48-4	
Molybdenum, Total Recoverable	0.069	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 11:55	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/18/17 12:44	09/18/17 16:08	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1760	mg/L	5.0	1		08/29/17 10:52		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		08/30/17 12:58		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	195	mg/L	20.0	20		09/20/17 11:29	16887-00-6	
Fluoride	0.75	mg/L	0.20	1		09/19/17 16:39	16984-48-8	
Sulfate	936	mg/L	100	100		09/20/17 11:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Sample: DUP-082817		Lab ID: 60251948002	Collected: 08/28/17 06:00	Received: 08/29/17 07:05	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Total Recoverable	0.032	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:35	7440-39-3	
Beryllium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	08/30/17 14:35	7440-41-7	
Boron, Total Recoverable	1.3	mg/L	0.10	1	08/29/17 12:19	08/30/17 14:35	7440-42-8	
Calcium, Total Recoverable	227	mg/L	0.10	1	08/29/17 12:19	08/30/17 14:35	7440-70-2	
Chromium, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:35	7440-47-3	
Lead, Total Recoverable	<0.0050	mg/L	0.0050	1	08/29/17 12:19	08/30/17 14:35	7439-92-1	
Lithium	<0.010	mg/L	0.010	1	08/29/17 12:19	08/30/17 14:35	7439-93-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Antimony, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7440-36-0	
Arsenic, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7440-38-2	
Cadmium, Total Recoverable	<0.00050	mg/L	0.00050	1	08/29/17 12:19	09/05/17 12:02	7440-43-9	
Cobalt, Total Recoverable	0.0013	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7440-48-4	
Molybdenum, Total Recoverable	0.071	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7439-98-7	
Selenium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7782-49-2	
Thallium, Total Recoverable	<0.0010	mg/L	0.0010	1	08/29/17 12:19	09/05/17 12:02	7440-28-0	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	<0.00020	mg/L	0.00020	1	09/18/17 12:44	09/18/17 16:10	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	1790	mg/L	5.0	1		08/29/17 10:52		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.4	Std. Units	0.10	1		08/30/17 13:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	197	mg/L	20.0	20		09/20/17 11:58	16887-00-6	
Fluoride	0.74	mg/L	0.20	1		09/19/17 17:08	16984-48-8	
Sulfate	938	mg/L	100	100		09/20/17 12:12	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 494528

Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1

Analysis Description: 245.1 Mercury

Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2023233

Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/L	<0.00020	0.00020	09/18/17 15:57	

LABORATORY CONTROL SAMPLE: 2023234

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	.005	0.0054	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2023235 2023236

Parameter	Units	60251947001		2023235		2023236		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	mg/L	<0.00020	.005	.005	0.0049	0.0051	98	101	70-130	3	20

MATRIX SPIKE SAMPLE: 2023237

Parameter	Units	60253227001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	.005	0.0051	100	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 491981 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2013430 Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	<0.0050	0.0050	08/30/17 14:00	
Beryllium	mg/L	<0.0010	0.0010	08/30/17 14:00	
Boron	mg/L	<0.10	0.10	08/30/17 14:00	
Calcium	mg/L	<0.10	0.10	08/30/17 14:00	
Chromium	mg/L	<0.0050	0.0050	08/30/17 14:00	
Lead	mg/L	<0.0050	0.0050	08/30/17 14:00	
Lithium	mg/L	<0.010	0.010	08/30/17 14:00	

LABORATORY CONTROL SAMPLE: 2013431

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.99	99	85-115	
Beryllium	mg/L	1	0.99	99	85-115	
Boron	mg/L	1	0.96	96	85-115	
Calcium	mg/L	10	9.6	96	85-115	
Chromium	mg/L	1	0.98	98	85-115	
Lead	mg/L	1	1.0	103	85-115	
Lithium	mg/L	1	0.99	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2013432 2013433

Parameter	Units	60251805001		2013432		2013433		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Barium	mg/L	0.12	1	1	1	1.2	1.2	106	105	70-130	1	20		
Beryllium	mg/L	<0.00033	1	1	1	1.0	1.0	104	102	70-130	2	20		
Boron	mg/L	1.8	1	1	1	2.9	2.8	109	98	70-130	4	20		
Calcium	mg/L	537	10	10	10	539	528	24	-87	70-130	2	20	M1	
Chromium	mg/L	<0.0014	1	1	1	1.0	0.98	103	98	70-130	5	20		
Lead	mg/L	0.0028J	1	1	1	0.89	0.91	89	91	70-130	2	20		
Lithium	mg/L	0.54	1	1	1	1.8	1.7	124	119	70-130	3	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 491980 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
 Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2013424 Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/L	<0.0010	0.0010	09/05/17 11:42	
Arsenic	mg/L	<0.0010	0.0010	09/05/17 11:42	
Cadmium	mg/L	<0.00050	0.00050	09/05/17 11:42	
Cobalt	mg/L	<0.0010	0.0010	09/05/17 11:42	
Molybdenum	mg/L	<0.0010	0.0010	09/05/17 11:42	
Selenium	mg/L	<0.0010	0.0010	09/05/17 11:42	
Thallium	mg/L	<0.0010	0.0010	09/05/17 11:42	

LABORATORY CONTROL SAMPLE: 2013425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	.04	0.040	100	85-115	
Arsenic	mg/L	.04	0.041	102	85-115	
Cadmium	mg/L	.04	0.040	101	85-115	
Cobalt	mg/L	.04	0.040	101	85-115	
Molybdenum	mg/L	.04	0.041	102	85-115	
Selenium	mg/L	.04	0.040	101	85-115	
Thallium	mg/L	.04	0.039	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2013426 2013427

Parameter	Units	2013426		2013427		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	0.00011J	.04	.04	0.027	0.027	67	67	70-130	0	20 M1
Arsenic	mg/L	0.0022	.04	.04	0.027	0.027	63	63	70-130	1	20 M1
Cadmium	mg/L	<0.000018	.04	.04	0.022	0.022	55	55	70-130	0	20 M1
Cobalt	mg/L	0.0072	.04	.04	0.034	0.034	67	67	70-130	0	20 M1
Molybdenum	mg/L	0.0074	.04	.04	0.042	0.041	86	84	70-130	2	20
Selenium	mg/L	<0.000086	.04	.04	0.022	0.022	55	55	70-130	1	20 M1
Thallium	mg/L	<0.00018	.04	.04	0.035	0.035	87	88	70-130	1	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 491906

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2013226

Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	08/29/17 09:32	

LABORATORY CONTROL SAMPLE: 2013227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	977	98	80-120	

SAMPLE DUPLICATE: 2013228

Parameter	Units	60251761003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	468	467	0	10	

SAMPLE DUPLICATE: 2013229

Parameter	Units	60251856007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	159	162	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 492191 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 60251948001, 60251948002

SAMPLE DUPLICATE: 2014091

Parameter	Units	60251920001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.1	8.1	0	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 494740

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2023778

Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	<0.20	0.20	09/19/17 15:40	

LABORATORY CONTROL SAMPLE: 2023779

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.3	93	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 494891 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 2024673 Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<1.0	1.0	09/20/17 10:02	
Sulfate	mg/L	<1.0	1.0	09/20/17 10:02	

LABORATORY CONTROL SAMPLE: 2024674

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	94	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2024675 2024676

Parameter	Units	7573568001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Chloride	mg/L	17.8	10	10	27.5	27.5	98	97	80-120	0	15	

MATRIX SPIKE SAMPLE: 2024677

Parameter	Units	60252961001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	802	500	1340	108	80-120	
Sulfate	mg/L	1430	500	2000	115	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Sample: BAA-7-082817 **Lab ID: 60251948001** Collected: 08/28/17 11:55 Received: 08/29/17 07:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.602 ± 0.447 (0.589) C:NA T:89%	pCi/L	09/11/17 12:57	13982-63-3	
Radium-228	EPA 904.0	0.724 ± 0.478 (0.934) C:74% T:89%	pCi/L	09/13/17 11:16	15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.925 (1.52)	pCi/L	09/19/17 17:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Sample: DUP-082817 **Lab ID: 60251948002** Collected: 08/28/17 06:00 Received: 08/29/17 07:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.305 ± 0.246 (0.138) C:NA T:92%	pCi/L	09/11/17 12:57	13982-63-3	
Radium-228	EPA 904.0	0.964 ± 0.508 (0.918) C:67% T:84%	pCi/L	09/13/17 11:17	15262-20-1	
Total Radium	Total Radium Calculation	1.27 ± 0.754 (1.06)	pCi/L	09/19/17 17:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 270145

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 1329310

Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0498 ± 0.287 (0.655) C:79% T:90%	pCi/L	09/13/17 11:16	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

QC Batch: 270142

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 60251948001, 60251948002

METHOD BLANK: 1329307

Matrix: Water

Associated Lab Samples: 60251948001, 60251948002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.475 ± 0.377 (0.490) C:NA T:89%	pCi/L	09/11/17 12:19	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JEC CCR GROUNDWATER

Pace Project No.: 60251948

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60251948001	BAA-7-082817	EPA 200.7	491981	EPA 200.7	492041
60251948002	DUP-082817	EPA 200.7	491981	EPA 200.7	492041
60251948001	BAA-7-082817	EPA 200.8	491980	EPA 200.8	492040
60251948002	DUP-082817	EPA 200.8	491980	EPA 200.8	492040
60251948001	BAA-7-082817	EPA 245.1	494528	EPA 245.1	494640
60251948002	DUP-082817	EPA 245.1	494528	EPA 245.1	494640
60251948001	BAA-7-082817	EPA 903.1	270142		
60251948002	DUP-082817	EPA 903.1	270142		
60251948001	BAA-7-082817	EPA 904.0	270145		
60251948002	DUP-082817	EPA 904.0	270145		
60251948001	BAA-7-082817	Total Radium Calculation	272308		
60251948002	DUP-082817	Total Radium Calculation	272308		
60251948001	BAA-7-082817	SM 2540C	491906		
60251948002	DUP-082817	SM 2540C	491906		
60251948001	BAA-7-082817	SM 4500-H+B	492191		
60251948002	DUP-082817	SM 4500-H+B	492191		
60251948001	BAA-7-082817	EPA 300.0	494740		
60251948001	BAA-7-082817	EPA 300.0	494891		
60251948002	DUP-082817	EPA 300.0	494740		
60251948002	DUP-082817	EPA 300.0	494891		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Sample Condition Upon Receipt

WO#: 60251948



60251948

Client Name: Westar Energy

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-266 / T-239 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 1.7 Corr. Factor 0.9 / 0.3 Corrected 1.7

Date and initials of person examining contents:

PB/29/17

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>PH</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix: <u>WT</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Cyanide water sample checks: <input checked="" type="checkbox"/> N/A		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amw Date: 8/29/17

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: PACE, KS

Project # 30228602

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 778565963973

Label	<u>ZH</u>
LIMS Login	<u>ANV</u>

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C
Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 8/30/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>PHCZ</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>ZH</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>ZH</u> Date: <u>8/30/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ATTACHMENT 2
Groundwater Potentiometric Maps

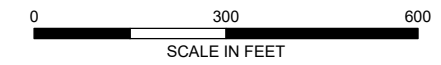


LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), AUGUST 2016
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 19 AUGUST 2016.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 19 AUGUST 2016 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
AUGUST 19, 2016**



NOVEMBER 2022

FIGURE 2

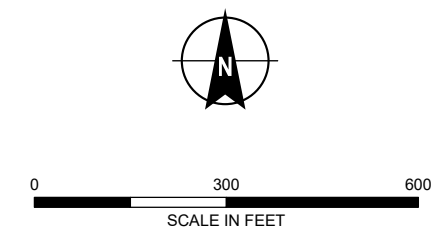


LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), SEPTEMBER 2016
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 21 SEPTEMBER 2016.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 21 SEPTEMBER 2016 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
SEPTEMBER 21, 2016**








NOVEMBER 2022

FIGURE 3



LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), NOVEMBER 2016
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 02 NOVEMBER 2016.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 02 NOVEMBER 2016 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
NOVEMBER 2, 2016**



NOVEMBER 2022



LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), DECEMBER 2016
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 DECEMBER 2016.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 14 DECEMBER 2016 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
DECEMBER 14, 2016**



NOVEMBER 2022



LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), FEBRUARY 2017
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 08 FEBRUARY 2017.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 08 FEBRUARY 2017 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
FEBRUARY 8, 2017**



NOVEMBER 2022

FIGURE 6



LEGEND

- MW-BAA-1** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), APRIL 2017
- 1219.84**
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
- BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 07 APRIL 2017.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 07 APRIL 2017 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
APRIL 7, 2017**








NOVEMBER 2022

FIGURE 7



LEGEND

- MW-BAA-1** WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), MAY 2017
- 1219.84**
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 25 MAY 2017.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 25 MAY 2017 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS






**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
MAY 25, 2017**



NOVEMBER 2022



LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), JUNE 2017
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 28 JUNE 2017.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 28 JUNE 2017 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS






BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
JUNE 28, 2017



NOVEMBER 2022



LEGEND

- MW-BAA-1** 1219.84 WELL NAME AND GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (AMSL), AUGUST 2017
-  MONITORING WELL
-  PIEZOMETER OBSERVATION ONLY
-  ESTIMATED GROUNDWATER POTENTIOMETRIC OBSERVATION ELEVATION CONTOUR, 5-FT INTERVAL (AMSL), DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION AND APPROXIMATE GROUNDWATER FLOW RATE (FEET/YEAR)
-  BOTTOM ASH SETTLING AREA / BOTTOM ASH LANDFILL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 28 AUGUST 2017.
3. THE GROUNDWATER FLOW RATE WAS APPROXIMATED USING THE HYDRAULIC GRADIENT CALCULATED FROM GROUNDWATER POTENTIOMETRIC ELEVATIONS MEASURED 28 AUGUST 2017 AND THE CONDUCTIVITY VALUES AND EFFECTIVE POROSITY VALUES OBTAINED FROM SLUG TESTS COMPLETED APRIL 2016.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019



EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
ST. MARY'S, KANSAS

**BOTTOM ASH SETTLING AREA /
BOTTOM ASH LANDFILL
GROUNDWATER POTENTIOMETRIC
ELEVATION CONTOUR MAP
AUGUST 28, 2017**



NOVEMBER 2022